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BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 4 1947

AIR-BORNE INFECTION*

BY

R. J. V. PULVERTAFT, O.B.E., M.D., F.R.C.P.

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The conception of air-borne infection came thousands of years before the discovery of bacteria. As soon as man became an animal living in large settled communities epidemic disease was inevitable, and the most primitive intellect could grasp the significance of the unseen transmission of a fatal agent. The word "toxin" has carried on to the present day the Old Testament conception of an arrow flying in the darkness, and the mediaeval paintings of St. Sebastian continue the metaphor. Plague-stricken London anticipated Lister with fumes of brimstone; the judge still carries his posy of flowers to ward off jail fever; and the observations of Twort and his colleagues on the value of smokes as bactericidal agents must remind all who have visited Eastern bazaars of the itinerant incense carrier. Perhaps the use of incense in many religions had the neutralization of infection as one motive.

Eighteenth-century doctors, with their leisurely precision, made some guesses very near the mark. Sydenham wrote: "The matter so falls out that at this time or that time the air is furnished with particles that are adverse to the human body." Arbuthnot, in 1733, in *An Essay concerning the Effects of Air upon the Human Body*, said: "Nothing accounts so clearly for epidemical diseases seizing human creatures inhabiting the same tract of earth who have nothing in common that effects them except air" as that "air is the τὸ θεῖον in disease." Air is the mysterious something of the ancients. It was indeed through experiments on air, still recalled to bacteriologists by their daily use of the Pasteur pipette, that the whole of modern bacteriology evolved. In his first classic paper Lister wrote: "The air owes the property [of putrefaction] to minute parasites suspended in it, which are the germs of various forms of life"; and Koch in one of his earliest papers wrote: "It is also highly probable that the tubercle bacilli are usually inhaled with the inspired air, clinging to particles of dust."

It is therefore not surprising to find that the early bacteriologists particularly studied the air. Flügge in 1897 put forward the conception of droplet infection, though it is only in comparatively recent years that the subject has again come to the forefront. Indeed, the early workers soon found that direct contact and contaminated instruments were in many cases far more important to the surgeons; and they lacked equipment capable of controlled measurement of the bacterial content of the air.

* A lecture delivered at the Royal College of Surgeons of England.

Technical Methods

One of the oldest and simplest methods of culturing the air is to expose Petri dishes, and the method is still quite satisfactory. It is true that this gives no quantitative values, but the number of organisms falling on to a plate is proportional to the number in the air, and runs roughly parallel with more exact measurements. Quantitative estimates may be made by a simple technique devised by Elford: a piece of filter paper is placed in a Seitz filter, a known volume of air sucked through, and the disk dropped on to a semi-solid agar plate. For critical work, however, the air centrifuge of Wells or the slit sampler of Bourdillon must be used. It is possible to-day to give a reasonably exact estimate of the number of particles containing bacteria. The results of course vary according to conditions: probably the air is nowhere sterile, even at great heights. From personal observations it is found that a hospital ward normally has about fifty such particles per cubic foot, but when beds are made the number rises to 2,000–3,000. Bourdillon and Colebrook, using filtered air in a surgical dressing-room, found 0.005 particles per cubic foot; this figure rose to more than 600 when dressings were done without ventilation. Canteens were found to have up to 250. In air-raid refuges the bacterial content gradually rose nearly tenfold over a period of hours.

Experiments on animals are not entirely satisfactory. Mice can be infected by mists of influenza virus and of pasteurella. Ferrets infected with influenza and virulent streptococci transmit the streptococci to ferrets, at the other end of an animal house, infected with influenza only; rabbits infected with tuberculosis transmit the infection to others at a distance. On the whole, however, air-borne infection has not lent itself to experiments of this type.

General Principles

It is to be anticipated that certain forms of bacterial life would adapt themselves to aerial spread, as certain plants have winged seeds and as other bacteria adapt themselves, through their mobility, to aquatic life. The vast majority of air-borne organisms are non-pathogenic. The majority are resistant to desiccation owing to spore formation, and probably of low specific gravity. The universality of moulds is due to these factors. Moulds are of immense economic importance, and so versatile that they infest even cold-storage plants. Indeed, the control of mould infection offers great scope to the technique used in the control of infection, and appears to be neglected.

On general principles, again, we should expect organisms which infect the respiratory tract to travel via the air. This, however, does not imply that they do so travel. It is exceedingly difficult to isolate pathogens from the air by the most refined technique. In tests with which I was concerned large barrack-rooms with very poor ventilation were tested. Nearly all the inhabitants were found to be carriers of meningococcus, but no meningococci were isolated from the air. For the greater part of a year I tested the air of crowded air-raid refuges without isolating haemolytic streptococci or pneumococci. The only haemolytic streptococci which I have isolated from the air came from the neighbourhood of patients with infected wounds. Such organisms have been isolated from scarlet-fever wards by many observers, but even the most crowded room occupied by healthy persons yields amazingly few pathogenic forms.

Flügge's original conception of droplet spread was criticized because the majority of droplets fall quickly to the ground. However, W. F. and M. W. Wells found that some were so minute—nuclei, as they named them—as to remain suspended for long periods. In this way infective agents might theoretically remain and build up in unventilated rooms. However, it appears certain that it is the organisms which fall to the ground or on to clothing or bedclothes which are the most important. Dust is undoubtedly rich in pathogenic bacteria and viruses. The varieties so isolated, even by the simplest technique, are most significant. Diphtheria bacilli can usually be found in fever hospital dust and tubercle bacilli in sanatoria, and the poliomyelitis virus has been identified in the dust of a room occupied by a case. I have rarely failed to isolate *Cl. tetani* and *Cl. welchii* from London dust, and infection with tetanus has been ascribed to air-borne spread. Streptococci are of particular importance, as they remain viable on blankets and clothing for a month or more. Smallpox virus remains infective on crusts for many years, and influenza virus in dust can survive for long periods. It is practically certain that under epidemic conditions plague and typhus, normally spread by insect vectors, can be spread by dust.

It is obvious, too, that organisms from the respiratory tract infect wounds; indeed, the early infections of wounds are largely from that source, the later infections being of faecal origin. Haemolytic streptococci, staphylococci, and diphtheria bacilli reach wounds from the respiratory tract either direct as droplets or indirectly on dust particles.

General Principles of Control

It is necessary to do some clear thinking on the objectives and limitations of aerial disinfection. The provision of a pure water supply, though difficult, is possible and most desirable, since we can treat all the water drunk. But we cannot sterilize all the air breathed. The open air is always safe, but the maximum risk of air-borne infection, especially through droplets, is present where human beings are grossly crowded together as they are under modern transport conditions. Even if we could ensure safe air during the rest of a city worker's life he would be exposed at least twice a day to conditions where no known method of air sterilization could possibly operate. It was seriously suggested, at the outset of the recent war, that under epidemic conditions masks might be worn by all, and masks were in fact ready in store. But even if it were possible to induce people to wear them, would it really be beneficial? The medical history of the war was most instructive. Ventilation was very poor in the black-out. Air-raid refuges and tube stations were crowded, all the conditions for epidemics appeared to be present, and I was one of those who formed a team to combat them. But apart from German measles, which did not appear to be related to overcrowding, no epidemics broke out. Again, the number of carriers of meningococci increased alarmingly, so that nearly all soldiers in certain barracks were affected; but the rise in the incidence of meningitis, though significant, was never a serious problem. Transports going to Egypt were grossly overcrowded: during the first week of the journey respiratory infection was universal, but the rest of the two-months journey was healthy. This was not true, however, of native troops from Africa, who suffered severely from pneumonia, chicken-pox, and meningitis. Is it not a fact that immunity from the common respiratory infections is closely related to constant exposure to infection? Herd immunity is a real thing; and we are all aware that a holiday from urban conditions is bought at the price of an acute "cold" on returning to town. If it is not possible to deal with crowded transport conditions, what merit is there in dealing with offices, places of amusement, restaurants, and churches?

There are two exceptions to this rule: the first, that times of pandemics with a new or rare infection deserve special consideration; the second, that children are analogous with the native troops in transports, as they represent a group with little or no acquired immunity and spend much of their time in homogeneous groups. There is a lot to be said in favour of air sterilization in schools, and still more in favour of keeping children away from crowded places. The cinema is probably a greater danger to child health than to child morals, and the special matinées for children are ideally devised to spread infections. Moreover, if we are again faced with a dangerous pandemic of influenza, doubtless every method of limiting the dose of infective agent would be logically employed. Whether any known method of air control would help is, in my opinion, doubtful.

We are left with hospitals, particularly with fever and children's hospitals. Here there is a clear case for control of air-borne infection. Sick and devitalized patients are grouped together, many of them with wounds actually or potentially infected, and all that we know of the bacteriology of air and dust teaches us that every known method of control is most desirable. In America this problem has long been seriously tackled; here in England in spite of much pioneer work we lag sadly.

Methods

The methods available fall into several headings—control of droplet infection, ventilation, control of dust, and sterilization of air. Droplet infection must mainly be controlled by adequate masking: poorly designed masks merely collect organisms, which are then expelled in large doses. All nurses in infants' wards should be masked, and nurses with even minor respiratory infections should not remain on duty. The Spartan traditions of nursing are altogether bad. Since on speaking 300 organisms per word are emitted, operations should be silent. Sneezing expels 100,000 organisms per sneeze. The use of handkerchiefs is most desirable, but it would probably be far better if these were of paper, and used only once or twice. Proper ventilation is also essential. It is usually said that a poorly ventilated room has ten or less turnovers of air per hour; the best air-conditioning increases this to twenty-five turnovers. But in certain circumstances, as in operation theatres and surgical dressing-rooms, which at least for septic cases should be separate from main wards, a positive pressure of filtered air over the patient, as suggested and adopted by Bourdillon, is most effective, preventing banking-up of infected particles, and blowing away particles emitted by attendants. There is no substitute for good

ventilation in the control of all forms of infection. In one hospital during the war an outbreak of cross-infection in casualties ceased only when the windows were blown in during an air-raid. But we cannot always rely on bombs.

Dust control, again, is a paramount concern. By air-borne infection we usually mean infection by contaminated dust. This has long been known, and the rounded corners of well-designed hospitals and operation theatres follow on this principle. It has been placed on a firm basis by the classic work of van den Ende and his colleagues, one of the most important contributions ever made to this subject. The majority of hospitals, however, still have dangerously polished floors, and blankets are only rarely washed; indeed, dark-coloured blankets are used to make the need for washing less obvious. Treatment of floors by spindle oil and of blankets by a special oiling method will control dust to a remarkable degree and entirely prevent the phenomenal rise of air bacteria during bed-making. It is true that tests of this method of preventing cross-infection have not always been conclusive; there are a great many other loop-holes in aseptic technique, as Spooner and others have shown. But, whatever other methods may eventually prove necessary in this matter, it is certain that dust control will remain a first essential. The removal of infected plaster casts from suppurating wounds is a further source of dangerous dust formation, and oil should be used along saw cuts.

Air Sterilization

We now approach a more vexed question, the sterilization of air by antiseptic mists and smokes and by ultra-violet light. At the outset it must be stressed that both these methods are effective only or at least mainly against droplets and droplet nuclei. This is often overlooked, for the greater part of the experimental work has been with organisms sprayed from fluid suspensions into the air. It is with this type of work that I have personally had most acquaintance, and I have satisfied myself that, while both methods are entirely effective against droplets, they break down with dust. Since dust is the most dangerous infecting agent their use is severely limited.

The method of antiseptic mist spraying dates from the time of Lister. Lister's phenolic mists were in fact not effective, since phenol used in his way is a poor aerial antiseptic. The last lair of Listerian technique is the cinema, where entirely useless spraying with odoriferous fluids is still practised. The originator of this technique on an efficient basis was Trillat, in France. Becholt developed the method in Germany, though neither author attracted much attention, and their names are rarely heard. In this country these antiseptics were developed largely through the laudable enterprise of commercial interests. There is an unreasonable and unfair prejudice in the medical profession against such activities, and it is only right to commemorate the work of firms such as the makers of "milton," the makers of "phantomyst," and the Portslade laboratories. The most important work is that of Twort and his colleagues at Portslade. Before and during the late war I had some personal contact with the method. Later it crossed the Atlantic, gaining, as is customary, much momentum and some amnesia in the transit. Of recent years most of the work on the subject, other than that of Twort and his colleagues, has been done there.

The facts are most fascinating and still largely unexplained. A limited number of antiseptics of low vapour pressure, when dissolved in low-vapour-pressure solvents and sprayed into the form of fine mists, can kill all droplet bacteria in five minutes or less. The amounts used are homoeopathic in their values: 5 ml. of 1% sodium hypochlorite will sterilize 1,000 cubic feet of air in less than five minutes, and less than 0.00025 g. of hexyl-resorcinol in propylene glycol will sterilize 1 cubic metre in a similar time. Robertson, in America, has claimed good results with propylene glycol alone; under the conditions of my experiments I did not find it valuable. Except in the possible case of sodium hypochlorite the question of volatilization—that is, solution of antiseptic in air—does not arise, for the amount of antiseptic sprayed is wildly outside the effective concentrations in fluids, and the effective agents are poorly volatile. I have suggested a species of balloon-barrage effect, through collision of particles, but mathematicians suggest that the rate of kill found is more rapid than collision would explain. It is possible that there may be attraction by an electric charge on the particles. Whatever the value of this method, from a bacteriological standpoint the results are of great interest.

More recently Twort has studied the effects of certain smokes (of which tobacco is not one) and has introduced heat volatilization of resorcinol, which greatly simplifies the technique.

All mists suffer from certain inevitable disadvantages. As mists are constantly being removed by ventilation, and also as all mists have a limited life, they must be constantly renewed; the better the ventilation the greater the volume of mist needed. Except with Twort's heat volatilization, this requires a constantly running mechanism, or at least one operating at frequent intervals. The occupants of rooms so treated are constantly breathing minute amounts of antiseptic. Some of these, such as sodium hypochlorite, are almost certainly harmless, and none have been shown to be harmful. Indeed, we probably inhale a great many phenolic substances every day without trouble. The most elaborate experiments on animals have failed to show any dangerous results. However, drugs and allergic individuals being what they are, sooner or later someone is sure to prove susceptible; with hypochlorites, also, some fading of textiles and corrosion of metals over a long period is possible. Most, though not all, have characteristic odours. Finally, although the volumes of antiseptic used are small, over long periods the expense would not be negligible.

Bacteria suspended in air can be as readily killed by ultra-violet light as by bactericidal mists. Indeed, from the point of view of speed and efficiency of kill there is little difference between the methods. The shortest period elapsing between the introduction of an organism and the production of practically sterile air was, in my experiments, about five minutes by both methods. The killing effect of light on bacteria has been known since 1899. The discovery that the bactericidal effect is mainly in the ultra-violet spectrum was due to the Klemperers in 1922. Here, again, trans-atlantic migration has proved a revitalizing process, and nearly all the work has been done in America. The names of Wells and Hart will always be closely associated with it.

Ultra-violet light with a wavelength of approximately 2,537 A.U. is used. It is produced by quartz low-pressure mercury discharge tubes provided with filters to control the rather objectionable ozone emission. There are no moving parts, upkeep is minimal, and the amount of electricity used insignificant.

The lamps may be used in many ways. For the sterilization of wards and living-rooms it is convenient for them to be above eye-level, and they must be mounted so that no rays are directed below this level. For operating theatres they have been directed on to the operation area, but the operators and attendants must wear goggles and all skin must be protected against burns. It has been suggested that there is a risk of adversely affecting viscera by exposure

to the rays. I think that there are better methods of keeping bacteria out of wounds.

The Americans have been using ultra-violet rays for air sterilization for many years. It is a standard equipment in many schools and hospitals. Wells calculates that it is equivalent to 500 turnovers of air per hour, compared with the 25 turnovers by the best ventilation. In groups of schools the incidence of susceptibility to measles in an epidemic was from 9 to 15.5% in irradiated schools, and 55.3% and 51.8% in two unirradiated schools. Similar results have been found with chicken-pox. Experimentally, rabbits have been protected against air-borne tuberculosis. In my opinion ultra-violet light is the simplest and most efficient technique of this kind, and has no objectionable features if the eyes and skin are not irradiated.

Respiratory disorders, from tuberculosis and pneumonia, through sinusitis to the common cold, are far the most frequent of the diseases of mankind, and they are spread mainly through the air. The common infectious and virus diseases of childhood cause a high mortality and lifelong respiratory tract disease, and the air is again the commonest vehicle. Air-borne sepsis and cross-infection are common, particularly in wartime. There is still a tendency to laugh away the protagonists of the control of air-borne infection as faddists. I heard a gynaecologist quite recently become vastly humorous at the suggestion that a nurse with a cold was a menace. But there is far too much hospital-bred infection, and far too many "sterile" operations go wrong. I feel quite sure that the time will come when the methods of controlling air-borne sepsis discovered in Europe and developed in America will return fully fledged to roost in their parent country.

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At a meeting of the North of England Obstetrical and Gynaecological Society held in Liverpool on July 4 Prof. T. N. A. Jeffcoate described a simple method of replacing the retroverted uterus by manipulating it with a Hodge pessary. This method made the usual bimanual replacement unnecessary before inserting the pessary. With the patient in the left lateral position the Hodge pessary was inserted and allowed to take up its own position. The upper rim came to lie in the anterior fornix and the lower bar projected beyond the introitus. One finger was then inserted behind the lower bar, through the pessary, and in front of the upper rim, which was pushed against the anterior aspect of the cervix. The cervix was thus deflected backwards and the body began to rotate forwards. Ultimately the upper rim slipped past the cervix into the posterior fornix. By this time the retroversion was nearly always corrected but sometimes only partially, the uterus lying with its axis vertical. In such cases the upper end of the pessary was pushed firmly against the posterior vaginal wall and the posterior fornix repeatedly "stroked" backwards and slightly downwards with the pessary. At the same time the lower end of the pessary came to lie at a higher level. Thus the cervix was levered backwards and the fundus came forwards and the pessary was automatically left in its correct position. Prof. Jeffcoate also read a paper on pyrexia as a sign of endometriosis. He had found no reference to this sign in the literature but did not claim it as original. He said it had been established that temperature varied with the menstrual cycle, but the peak occurred premenstrually and the onset of the flow was characterized by a fall. In endometriosis he had several records of cases where a temperature up to 101° or 102° F. (38.3°–38.9° C.) appeared cyclically during menstruation and gradually disappeared one or two days after the flow ceased.

BRITISH ANTI-LEWISITE

A Report on its Use and Therapeutic Value in Arsenical Intoxications, from the BAL Conference, Medical Research Council

BY

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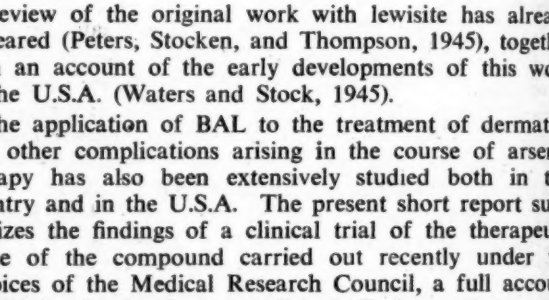
R. H. S. THOMPSON, D.M. (Secretary)

British anti-lewisite (BAL) is the name given to a compound, 2,3-dimercaptopropanol, discovered early in the war as a result of a planned research for the Ministry of Supply and developed as an antidote to the local and systemic damage caused by contamination of the skin or eyes with arsenical vesicant gases.

In the pure state it is a colourless oil, readily soluble in fat solvents, and soluble to the extent of about 6% in water. During 1941–2 its value in counteracting the effects produced by contamination with lewisite was exhaustively studied, and it was finally adopted officially as a suitable agent for the treatment of the effects of lewisite and the other arsenical vesicants. Its efficacy as an arsenical antidote and its power to reverse the tissue damage caused by arsenicals depend on its ability to form relatively stable ring compounds with arsenoxides, thereby diminishing the reaction of the arsenical with the tissues and increasing its urinary excretion from the system:



A review of the original work with lewisite has already appeared (Peters, Stocken, and Thompson, 1945), together with an account of the early developments of this work in the U.S.A. (Waters and Stock, 1945).

The application of BAL to the treatment of dermatitis and other complications arising in the course of arsenotherapy has also been extensively studied both in this country and in the U.S.A. The present short report summarizes the findings of a clinical trial of the therapeutic value of the compound carried out recently under the auspices of the Medical Research Council, a full account of which will shortly be published (Carleton, Peters, and Thompson: in the press).

Trial in Arsenical Dermatitis

The trial was based on the results obtained in 44 cases of arsenical dermatitis collected with the assistance of the Service Departments and the Ministry of Health. To facilitate the interpretation of any effects noted, the cases were selected so that the dermatitis was in each instance severe and widespread, 41 of them being of the acute exfoliative type.

Treatment was carried out by the clinicians in charge of the cases according to a scheme prepared by the BAL Conference, which was intended for initial guidance as to dosage. The ampoules of BAL used in this work were prepared by a modification of the method described by Eagle in the U.S.A., and contained 5% BAL in arachis oil

and benzyl benzoate; they were nitrogen-filled, and were sterilized by heating for one hour at 170° C.

The BAL was given by deep intramuscular injection into the thigh or gluteal region. In the hope of maintaining a concentration of the drug the following course of injections for adults of average weight was given in most cases: First day—4 injections of 2 ml. 5% BAL at 4-hourly intervals; second, third, and fourth days—2 ml. twice daily; fifth and sixth days—2 ml. daily. Where possible other local treatment of the affected skin was withheld.

From the reports received from the clinicians who co-operated in this trial it has been concluded that BAL therapy is of definite value in the treatment of this condition. Thirty-one of the 44 cases studied (70%) were benefited by the treatment, 23 of them (52%) strikingly so. The mean duration from the first injection of BAL to the time when healing was complete or nearly complete was 21 days. The earliest sign of response to treatment was in many cases a marked subsidence of the oedema present in the skin. In several instances clinical evidence of relapse was seen shortly after the end of the course of BAL therapy. In every case, however, this responded satisfactorily to a further short course of injections.

The outcome of this trial is in agreement with the results obtained elsewhere. The earliest use of BAL in the treatment of widespread arsenical lesions in man was in 7 cases of dermatitis (Longcope, Luetscher, Wintrobe, and Jäger, 1946) occurring in workers exposed to diphenylamine chlorarsine (phenarsazine chloride). These workers have also described 15 cases of generalized exfoliative dermatitis following the use of antisyphilitic arsenical drugs, and have stated that symptomatic and objective improvement regularly followed the administration of BAL. In this country Carleton *et al.* (1946), in an earlier series of 30 cases, have reported a beneficial effect in approximately 50% of cases.

Although favourable reports on the use of BAL in cases of arsenical encephalopathy and granulocytopenia have appeared in America (Report of the Council on Pharmacy and Chemistry of the American Medical Association, 1946; Eagle and Magnuson, 1946), we have not been able to study a sufficient number of cases of either of these conditions in this country to warrant a conclusion.

Clinical reports on the use of BAL in acute mercury poisoning (Longcope and Luetscher, 1946) and in gold intoxication (Cohen, Goldman, and Dubbs, 1947; Ragan and Boots, 1947; Lockie, Norcross, and George, 1947) have also been published, and the results obtained with these metals have been favourable. In the case of mercury 22 of the 23 patients studied recovered completely, although the amounts of mercury swallowed varied from 0.5 to 20 g., while 9 of the 10 cases of gold dermatitis described appear to have shown a prompt response to therapy. Work with lead, bismuth, and other metals has not yet progressed beyond the stage of animal experimentation.

Toxicity of BAL

As regards toxicity, the minimal dose given by intramuscular injection to man which causes toxic reactions lies between 3 and 5 mg./kg. Single doses of up to 8 mg./kg. have been given to normal subjects, and even at this level the toxic manifestations are completely reversible, lasting only a few hours. Apart from subjective phenomena, lacrimation, salivation, vomiting, and an elevation of both systolic and diastolic pressure occurred with these higher doses (Sulzberger, Baer, and Kanof, 1946; Modell, Gold, and McKeen Cattell, 1946). It should be pointed out that the therapeutic dose used in this country has been only about 1.5 mg./kg.; in America, on the other hand, a 10% solution of BAL has been used, and 6 doses at 4-hourly intervals of 3 mg./kg. have been given on the first day in severe cases (Eagle, 1946). In the treatment of acute mercury poisoning initial doses of up to 7 mg./kg. have been employed.

Though no evidence has been obtained of any increase in toxicity when BAL is injected into animals with experimentally induced renal damage, or of renal irritation in any of the cases in this series, increased toxic effects were present in animals with hepatic damage, which suggests that care should be exercised in the administration of BAL to patients with impaired liver function (Cameron, Burgess, and Trenwith, 1947). It should be added that BAL is not generally indicated in the treatment of post-arsphenamine hepatitis, the immediate cause of which appears to be infective in most cases (Salaman, King, Williams, and Nicol, 1944). Local abscesses have developed at the injection sites in a number of cases treated in this country. These may have been due to the septic condition of the skin in patients with exfoliative dermatitis of some standing, who are, in any case, prone to intercurrent infections of all kinds. This complication is probably preventable by the administration of BAL early in the course of the condition. A possible contributory factor is leakage of the substance into the subcutaneous tissue, which may be prevented by giving all the injections deep into the muscles. The abscesses, though troublesome, have healed satisfactorily with simple treatment, and do not, in our opinion, constitute a contra-indication to the use of BAL in such cases.

Conclusion

Up to the present time BAL has been manufactured by the Ministry of Supply, and in order that its therapeutic value could be firmly assessed distribution has been effected only through the Medical Research Council. It is considered that the value of the compound has now been established, and arrangements are being made by the Ministry of Supply for the preparation and issue of ampoules of BAL by firms in a position to exercise adequate biological control.

We would like to express our thanks to Miss F. B. Uffelmann, Ministry of Supply, and to the various clinicians who have co-operated in this trial, and also to Messrs. Boots Pure Drug Co., Ltd., and Messrs. Burroughs Wellcome and Co., Ltd., for the dispensing of the material used.

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Further detailed reports of biochemical, pharmacological, and clinical aspects of the work on BAL may be found in: *Biochem. J.*, 1946, vol. 40; *J. Pharmacol.*, 1946, vol. 87 (Suppl.); *J. clin. Invest.*, 1946, vol. 25.

MANIC STATES IN THE FAR EAST*

BY

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Shortly after the Japanese capitulation there were observed in South-East Asia a number of cases of interest in several ways: their cause was obscure; their symptoms were elation, overactivity, and fever; their distribution was mostly in young British officers; and, however acute the symptoms, the prognosis was good.

The first appearance of these cases was dramatic. In August, 1945, preparations for the reoccupation of Malaya had been made, and at the last moment the Japanese capitulated. The blow thus, so to speak, fell upon air. A few weeks later four British officers were admitted within a period of 12 days to the psychiatric centre serving the corps concerned. Between the landings and the end of this period no other cases of psychosis—British, Indian, or Gurkha—had been reported in this corps.

Col. T. A. Ratcliffe and Majors J. D. Frazer, D. T. Bardon, and A. A. Martin. Others may have occurred in this theatre at the time, but they cannot have been many, for the psychiatrists—to whom they necessarily came—had been asked to notify me of any cases.

Symptoms

The presenting symptoms were very similar. The patients were overactive, mentally and physically, easily excited to further activity, and exceedingly garrulous; they were elated and had some exaggerated ideas of their own importance, which at times amounted to mild delusions of grandeur, but which were always within the bounds of possibility and not fantastic. In a few cases religious ideas with a vague symbolic content were described; in a few there were ideas of reference and of persecution, and one had auditory hallucinations.

Although it was obvious that their judgment was impaired, most patients were capable of holding moderately logical conversations and showed little loss of comprehension. Only three exhibited flights of ideas, though most were rather easily distracted. The grasp of his surroundings shown by one patient—a senior officer—was such that he had put forward a detailed scheme of operation for some training which was accepted by his superiors its inconsistencies were not discovered till it was actually put into practice. This was, however, unusual, for in the remainder overactivity and distractibility were enough to send them off duty. Recognition of time and place was generally accurate, but mistakes were sometimes made identifying passers-by with old acquaintances. Memory for recent events was on the whole good. It is regrettable

TABLE I.—*Summary of Manic and Hypomanic States*

No.	Rank	Unit	Age	Previous Service Record	Precipitating Factors	Onset (Days)	Temp.	Symptomatology						Clinical Progress (in 2 Months)
								A	B	C	D	E	Delusions	
1	Capt.	R.I.A.S.C. (staff)	27	Good	Overwork (staff); sudden change	7	10 days intermittent	1	1	1	1	—	Persecution	Recovered
2	Capt.	,,	22	Good; schizoid attack, 1944	,,	2	—	2	2	1	1	—		Recovered after E.C.T. and insulin; later schizophrenia
3	2/Lieut.	Seaforths (staff)	24	Good	,,	3	—	1	1	1	1	—	Grandeur	Improving
4	Lieut.	R.E.	23	,,	Hard work; sudden dull job	3	—	—	1	1	1	—	—	Returned to duty
5	Capt.	P.C. (staff)	?		Overwork	2–3	—	1	1	1	1	—	—	Improving, but hypochondriacal
6	Lieut.	—	?	,,	?	2	—	1	—	1	1	—	—	Improving, after E.C.T.
7	Fl.-Lieut.	R.A.F.	?	,,	Change from ops. to heavy staff work	2	—	1	—	1	1	—	—	,, ,,
8	Lieut.	R.E.	25	Good; moody if alone	Overwork; responsibility	2; depressed then excited	101·6° to 99°	1	1	1	1	—	Grandeur	After a week temp. rose, became stuporous, died
9	F.O.	R.A.F.	24	Good	Change from ops. to codes; domestic stress	3; depressed, confused	?	1	1	1	1	—	—	Improving
10	Lieut.	R.E.	22	Excellent	Overwork as Q.M.	?	100°	1	1	1	1	—	—	Improving, but hypochondriacal
11	Capt.	—	24	Good	? fever 2 weeks before	2	99°	2	2	2	1	—	—	Improving
12	2/Lieut.	R.M.	21	,,	? Urinary infection	3; fatuous	—	1	1	1	1	—	Grandeur	Improving, but hypochondriacal
13	Capt.	Sigs. (staff)	26	Good; reserved	Domestic stress	2; heavy drinking	99°	1	2	1	1	1	Religious symbolism	Recovered; some amnesia
14	Major	I.M.S.	30	Good; energetic; malaria several times	Overwork; responsibility	3	100°	2	1	2	2	—	—	Improving
15	Sgt.	F.S.S.	19	Excellent; conscientious	,, ,,	10; feverish, busy	99°	2	—	2	2	—	Religious symbolism	Improving
16	A.B.	R.N.		Average	Home-sick	3	99°	2	2	2	1	1	Grandeur	Improving on E.C.T.
17	Sgt.	R.A.M.C.	27	Good; one ? hysterical episode	Frustration at work; overwork	3; guilt, inadequacy	100°	1	—	2	1	—	—	Improved; relapsed on boat
18	Cook	H.M.S. *Vindex*	20	Average	Home-sick; resented lack of welfare	10	—	1	2	2	1	—	Hallucinations (auditory)	Recovered
19	Mne.	,,	21	,,	Not enough to do	2	99°	1	1	1	1	—	Ideas of reference	,,
20	Capt.	Paratroops	25	Good	Missed train on way to paratroop training	2	—	1	1	2	2	—	Religious ideas	,,
21	Mne.	R.M.	18	,,	Not enough to do, after busy job in Australia	impatient 1	—	1	—	2	1	1	Grandeur	,,
22	P.O.	R.A.F.	25	,,	Domestic stress	1; rash, ? dengue	102°	1	1	1	1	—	Persecution	Improved but still paranoid
23	Gp. Capt.	R.A.F.	37	Excellent	Overwork; domestic stress	3	—	1	1	2	1	—	Grandeur	Improved

Symptomatology columns: A = Elation; B = Aggression; C = Overactive; D = Garrulous; E = Flights of Ideas; 2 acute; 1 present.

As a result of this experience, investigations were made in other areas and further cases were found: 11 in Singapore (these occurred in the island itself or had been sent from South Malaya, Java, or Sumatra); others were seen in Bangkok and Rangoon, or came from H.M. ships at sea. In all, records of 23 cases have been collected (Table I), of which I saw 16. Details of the remainder (in several different areas) were kindly supplied by Lieut.-

* A portion of a thesis accepted for the degree of M.D. at the University of Cambridge.

that local difficulties as well as the clinical states prevented a more systematic investigation of attention, memory, and comprehension.

When first seen many patients were aggressive, abusive, and sometimes very violent. This symptom disappeared rapidly when skilled cure could be provided; it is probable that it was not so much a primary symptom as a secondary result of the opposition, restraint, and, unfortunately, antagonism occasionally provoked by the patient's behaviour. It is to be emphasized that the most striking symptoms were overactivity and change in mood, and not a disorder of comprehension.

Investigation into the onset of the condition usually revealed a change in behaviour over the last two or three days—in two cases, ten days. Generally this change consisted of overactivity and elation, as described above, and it increased gradually. But several patients had, on the contrary, been morbidly depressed before their excitement began, and two had had feelings of inadequacy and guilt—for which each had had some real cause. One of these two had sought refuge in a day's heavy drinking. One man (Case 18) had been so aggressive and insubordinate as to have been put on 61 charges by an apparently meticulous C.O. in the ten days before admission. In some cases there were records of low fever of 99° to 100° F. (37.2° to 37.8° C.) before admission, and several patients said they had felt feverish for a few days and had been out of sorts and sleeping badly. No focus of infection or any sign of physical abnormality was discovered in any patient except the one whose temperature rose to 102° F. (38.9° C.); he showed an erythematous rash. Blood cultures, blood counts, and examinations for malaria parasites were all negative. Most cases were very resistant to sedatives, becoming less restive only on heavy doses. Little change was seen in their behaviour for a week or so, and careful nursing and supervision were essential.

Previous History

Naturally, the earlier history of these patients was generally dependent on their unsupported statements obtained after recovery; but most showed a singular lack of previous psychological disorder. Only two had had any trouble—one had had a schizoid attack a year before, which cleared up in a few months, and the other had apparently had a hysterical amnesia. Moreover, the Service records of nearly all were good. They were occupying responsible positions and enjoyed a good reputation (among superiors and subordinates alike) for conscientiousness and hard work.

Investigation of the circumstances before the onset showed that fourteen cases had been definitely exposed to increased mental work and increased responsibility for a few months before V.J. Day.

Four of the first five officers had been employed for several months on staff work, involving much planning, minute attention to detail, and severe responsibility for the lives of others; and it is significant that all four were reported to have expressed considerable misgivings about the success of a landing against opposition (whether this was at all justified by the facts as they saw them or was itself a symptom of illness it seems impossible to say). Four other cases had considerable anxiety over domestic problems—two were simply home-sick, and two found themselves "browned off" at lack of work. No mental stress was elicited in the remainder, but two of them had had a history of some infection a few weeks before.

The rank incidence is of great interest: seventeen patients were officers and six were "other ranks." Moreover, two of the latter were holding extremely responsible jobs. One patient, an officer, was an Indian. The ages ranged from 19 to 37 years, but only one was over 30.

Course of the Illness

During treatment several patients became hypochondriacal and expressed anxiety over minor complaints; others showed considerable anxiety over their future careers. This was not due to realization of the seriousness of their past illness, for few had a full insight into the abnormality of their past behaviour, and several had a complete or partial amnesia for the acute period. When it was partial they remembered their surroundings in hospital but not their own aggressiveness, though a few admitted they might have been "a bit unreasonable." Others had no memory of doctors who had seen them in their acute phase. In two months from the onset seven had made a complete clinical recovery, and thirteen were still improving.

In all these either electric convulsion or insulin treatment had been given. Two had shown improvement described as "recovery," but then relapsed. It is of interest to note that these two were those with a record of previous psychological disorder—one, with a previous schizoid episode, developed a paranoid schizophrenic state which persisted; the other, with a hysterical amnesia in his record, became temporarily confused and aggressive during his voyage home.

Finally, one patient died. A few days after admission with typical symptoms his temperature rose to 101.6° F. (38.7° C.) and he became stuporose; the temperature dropped just before death a week later. A blood count showed 18,000 white cells per c.mm., but no physical abnormality was found clinically and none at necropsy except cerebral oedema and many small haemorrhages. This was one of the cases with a depressive onset.

A full follow-up of all cases after a year is naturally not available, since most were evacuated from South-East Asia to India, and I saw only a few. The details were obtained from Col. R. J. Rosie and Lieut.-Col. A. J. Galbraith, to whom I am indebted.

Rates of Psychosis

The importance of these cases may be thrown into relief if the general rate of psychosis in this period is compared with a sample of cases evacuated from India and Burma earlier in the year (Table II). It will be seen (*a*) that a much greater percentage of psychoses occurred in cases evacuated from South-East Asia between October, 1945, and June, 1946—unfortunately figures are not available for August and September, 1945, here; (*b*) that this rise was in part due to an increase of schizophrenics, which persisted till June, and in part to an increase in manics, which was evident only in the winter months.

TABLE II.—*Distribution of Types of Psychosis*

Source	Date	Schizophrenics	Manics	Depressives	Others	Total	% of these Psychotics to all Psychiatric Cases
All evacuations from India and Burma	Jan.–July, 1945	64	17	29	11	121	24·2
All evacuations from S.E. Asia	Oct., 1945–Jan., 1946	24	11	1	5	41	44·1
	Feb.–June, 1946	14	1	5	—	20	43·8

The grouping by rank (Table III) is of interest. The disproportionate number of officers in the manic states is obvious.

TABLE III.—*Distribution of Psychoses by Rank*

Source	Date	Manics		Schizophrenics	
		Offrs.	O.R.s	Offrs.	O.R.s
Evacuations from India and Burma	Jan.–July, 1945	9	8	9	55
Evacuations from S.E. Asia ..	Oct., 1945–Jan., 1946	8	3	2	22
	Feb.–June, 1946	—	1	—	14

Review of Literature

No exactly similar series has been found in the literature surveyed; but various writers draw attention to significant points.

Incidence of Psychosis.—A higher rate of psychosis is generally recognized to prevail in the East. From the official figures for admissions to hospital the ratio of psychoses to psychiatric cases can be obtained. In England, between 1942 and 1945, this was as follows:

	All Ranks	Officers	Other Ranks
April, 1942–March, 1943 ..	25·3%	30·1%	15·0%
April, 1943–March, 1944 ..	26·5%	45·8%	25·4%
April–December, 1944 ..	16·3%	19·8%	16·2%
July and August, 1945 ..	20·3%	21·0%	20·2%

(*Bulletin of Army Hygiene*, April, September, and October, 1945.)

For periods in the Middle East, the figures for British troops, unfortunately not separated into officers and other ranks, were:

Oct.–Dec., 1943	19·0%	July–Dec., 1944	23·0%
Jan.–June, 1944	31·3%	Jan.–March, 1945	28·1%

(*Bulletin of Army Hygiene*, October, 1945.)

These figures support the theory that there is generally a higher proportion of psychosis in the East than in England, and also show clearly the higher rate among officers. No explanation of either point is given by the compilers of these figures.

Distribution of Psychosis.—There are various views on how the total of psychotic cases is made up by the various syndromes. Craigie (1944), in the Middle East, gave the ratio of schizophrenics to manic-depressives as over 3:1. Later, James (1945) considered that among 530 psychotics evacuated it was over 4:1.

Aetiology: Physical Factors

It is generally accepted that certain psychoses are directly due to physical causes; confusional states, for instance, may be caused by toxic processes. As the latter are commoner in the East it is possible that this is one reason for the higher incidence of psychosis there. Stungo (1946) suggests this, and also mentions the effects of dehydration.

Malaria was, of course, one of the commonest diseases met with in the East, and it often affected the mind. Its effects were also diverse—so much so that official directives were issued to doctors in the East recommending antimalarial treatment in all febrile mental syndromes. On the other hand, Merrill (1945) warned us that an aggressive psychopath might seek refuge in the word "malaria" and demand appropriate treatment, when his condition was purely a psychiatric one.

Mepacrine (atebrin) has also been blamed as a cause of psychosis. The evidence for any ill effect from a daily preventive tablet does not seem strong; it would in any case presuppose a rare idiosyncrasy. Larger doses given in treatment of malaria are obviously more likely to be dangerous and need careful consideration.

The largest series of cases of malaria recorded is that of 7,604 treated by Gaskill and Fitzhugh (1944); 35 of these developed psychoses, which were of two main kinds—confusional states, and states of excitement with delusions. But these authors admit that there is no convincing evidence of a direct effect of mepacrine, or even of malaria.

From Burma several other cases have been reported in which confusion, excitement, and hallucinations followed the use of mepacrine; these improved on its withdrawal but recurred on its renewal (unpublished communications from T. A. Ratcliffe and Kirpal Singh). As these authors admit very readily, however, it is impossible to be sure this was not due to the fluctuations of a psychosis; in fact, in one case an overdose of mepacrine was symptomatic of an incipient psychotic episode. Soysa (1945), in an unpublished communication, reported ten cases which showed toxic effects from mepacrine, but these were drawn from 550 patients treated in Ceylon in two years. Eight of the ten were typical hypomanic attacks and two manic. All recovered when the drug was withdrawn, but one relapsed when it was given again. The responsibility of mepacrine here seems more likely, but an account of the patients' previous personalities and of the psychological stresses they underwent would be of interest.

There are thus, obviously, factors whose full influence is not yet understood, and the exact relation of physical agents to these psychoses is not yet clear.

Mental Factors

These may be grouped under the headings of frustration, change of tempo, and constitutional.

Frustration is a term commonly used to describe a feeling of wasted ability, which may develop into an anxiety state either with depressive features (Gillespie, 1942) or with great tension, irritability, restlessness, insomnia, and a sense of internal unrest—in which state the sufferer is capable of doing considerable work, but at great cost to himself and his subordinates. This has been described elsewhere, as it occurs in base areas overseas (Tredgold, Heffernan, Kelly, and Leigh, 1946), and in this connexion MacCurdy's account (1945) of what is inevitable in departmentalism shows how the lack of aggressive outlet causes irritation to be vented on subordinates, so that a vicious spiral develops. The desire for scapegoats is significant; the next higher formation "they" are always blamed, so that G.H.Q., the apex, invariably becomes a byword.

Change of Tempo.—A more direct effect of the actual work and its pace is described by Curran and Garmany (1944) under the term "change of tempo." They give a series of cases of anxiety which developed in sailors just ashore on leave or, alternatively, in men admitted to hospital for some minor complaint, and consider that this might be due to the persistence ashore of the increased responsiveness developed by tension afloat.

Constitutional.—The importance of constitutional factors in psychoses has been widely accepted, and MacCurdy (1925) claimed that they were always discoverable even in patients whose relatives had not noticed them.

Further, specific types have been regarded as particularly liable to mania—the rigid individual (Freud, 1912), and the over-conscientious obsessional type who develops a sense of injury which prevents him from resting and has on occasion developed a typical manic-depressive cycle (Culpin, 1931), especially if his personality structure is characterized by self-centredness, lack of sociability, and lack of affection (Wittkower and Spillane, 1940).

Discussion

The cause of such conditions is generally considered to be physical, and blame has been laid on malaria and on mepacrine. Both are no doubt often responsible for states of excitement. The rather similar cases quoted by Soysa, for instance, were held to be due to excessive mepacrine, whereas Stungo's cases labelled as "toxic" showed acute

excitement, confusion, and fever, and several died in a way that resembled the fatal case here recorded. In this series, however, there was no record of overdosage of any drug or of the confusion reported in malaria, and no parasites were found; moreover, it is difficult to see any reason why malaria or overdosage of mepacrine should increase suddenly after V.J. Day.

On the other hand, there were mental factors which must have played a part. There was a very sudden and acute change in the tempo of work with a sudden relief of tension. This must have affected most strongly the over-conscientious responsible type of staff officer who had been employed in circumstances (the planning of a major operation) calculated to increase these obsessional tendencies and anxiety. This type formed the majority of the patients.

The restless state which appears in frustration has been described as an underlying unrest which the individual tries to stifle. It is not a great step to the symptoms of mania—where unrest has become overactivity and the attempt to stifle guilt or unworthiness has been oversuccessful and is crystallized out as a delusion of grandeur and elation.

The temperature of these cases suggests a toxic process, but full examination by physicians as well as psychiatrists failed to find any. Perhaps the fever was the result of the overactivity, not its cause. Much attention has been paid to physical conditions because these cases are commoner in the East and commoner in war, where exposure to physical illness is greater. But there are simple explanations, in psychological terms, of both these points. War produces a sense of urgency which is particularly felt by the overconscientious obsessional type. The latter's relaxations, too, are restricted, for he is often home-sick, tries to lose himself in his work, and will not take leave—where, as he says, he has nothing to do but brood and get more home-sick. In forward areas there is a physical outlet combined with the sense of work well done and a feeling of comradeship engendered by danger: relaxation is easier after action. In staff work and base areas there is less sense of achievement. The East thus exerts as much psychological effect—in separation from home and incompatible surroundings—as physical strain.

Summary

A series of 23 cases showing elation, overactivity, and fever occurred in South-East Asia in the months following the Japanese surrender.

The patients were mostly young officers (British) without a history of previous breakdown. The prognosis was good.

Records of psychosis in the East are reviewed.

A discussion of the possible causes leads to the conclusion that they were mental rather than physical, and are thought to be the sudden release of tension and the consequent change in the tempo of work.

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HOMOSEXUAL OFFENCES AND THEIR RELATION TO PSYCHOTHERAPY*

BY

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During 1946 there was considerable correspondence in the columns of the *British Medical Journal* on the subject of homosexuality, particularly concerning the forensic aspect. It was evident that there was a wide divergence of opinion, and in addition some of the correspondents seemed unaware of the extent to which homosexual offences occurred and of the extent of treatment carried out before the offence was committed. It was in fact evident that some regarded the commission of a homosexual offence as a *sine qua non* that the offender was a homosexual and that psychotherapy in some form was indicated. All cases charged with homosexual offences and received into H.M. Prison, Brixton, on remand or committed for trial are investigated as a routine; it was decided, therefore, to analyse those received during the year 1946 in order to ascertain whether the above-mentioned views were justified.

During that year 96 persons were received into the prison charged with homosexual offences; of these 52 (54.2%) were accompanied with a request from the magistrates for a report as to the state of mind of the accused, whereas the remaining 44 were examined owing to the nature of the charge. The total number of remand and trial prisoners received during the year was 5,023, so that the percentage of those charged with homosexual offences was 1.91. For comparison the number of cases charged with heterosexual offences was 198, of which 142 (71.7%) were sent for a report as to the accused's state of mind. Homosexual offences can be divided into four main groups—namely, indecent assaults on boys under the age of 16 years, importuning, buggery, and gross indecency. Of the 96 cases under consideration 39 were charged with indecent assaults on boys, 24 with importuning, 17 with gross indecency, and 16 with buggery. It is interesting at this point to consider the extent to which magistrates asked for reports on the mental state of the prisoner in respect of each of these groups of offences. In the cases of indecent assault reports were requested in 25 (64%), in cases of importuning in 20 (83%), in cases of gross indecency in 5 (29%), and in cases of buggery in 2 (12.5%). It is obvious that the law has much less consideration for medical opinion in cases of gross indecency and buggery than in the other two offences. Of the 96 cases, 57 involved offences against boys (including of course all the indecent assaults) and 39 involved offences against men.

The cases are classified into four groups. Individuals who on investigation were found to have heterosexual tendencies and in whom the homosexual offence was in the nature of a substitution for the normal heterosexual act are classified as "pseudo-homosexuals." The second group consists of the "bisexuals," individuals in whom strong heterosexual as well as strong homosexual tendencies were obvious. Thirdly, there were the "prostitutes," who are individuals who would have fallen into the pseudo-homosexual group but were characterized by the fact that the homosexual acts were carried out for gain. It is of interest that all these cases had previous convictions for the same offence. Finally, there is the group of the "true inverts" which numbered only 13, or 13.5% of the total series.

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Classification of the cases into these groups is shown in Table I.

TABLE I.—*Classification*

	Indecent Assault	Importuning	Gross Indecency	Buggery	Total
Pseudo-homosexuals	34	13	11	8	66
Bisexuals	5	1	2	4	12
Prostitutes	0	2	1	2	5
True inverts ..	0	8	3	2	13
Total ..	39	24	17	16	96

Date of Offence.—It has been stated that sexual activity and sexual offences reach a peak in the spring. Walker and Strauss (1939) suggest that this also holds good for homosexual offences. A glance at Table II shows that in 1946 at any rate this was not the case. On the contrary there was a general rise to a peak in September.

TABLE II.—*Date of the Offences*

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
3	5	7	8	6	8	9	5	15	9	11	10	96

Age.—Criminal statistics for some time have shown that the greatest incidence of adult crime occurs in the age group 21–29 years and that there is a steadily decreasing incidence in the higher age groups. Brixton Prison receives only men aged 23 years and over, and the lowest age group is therefore 23–29. Table III shows that the incidence of homosexual offences was slightly greater in the decade 30–39. For comparison, figures extracted from the Reports of the Commissioners of Prisons and Directors of Convict Prisons for the years 1939–41 and 1942–3 are included. These confirm my own findings. The figures for males convicted for all indictable offences in the years 1939–43 show the greatest incidence in the age group 21–29 in every year. The figures for males convicted of unnatural offences for the same years show a higher incidence in the age group 30–39 years; in 1941 and 1943 an even higher incidence was shown in the age groups 40–49 years.

TABLE III.—*Age of Offenders*

Age Group:	23–29	30–39	40–49	50–59	Over 60
Classification of present series by age groups					
Offences:					
True inverts ..	1	8	3	0	1
Bisexuals	4	2	4	2	0
Prostitutes	3	0	1	1	0
Pseudo-homosexuals	20	22	15	5	4
Total	28	32	23	8	5

Year	21–29	30–39	40–49	50–59	Over 60
Males convicted of all indictable offences for the years 1939–43					
1939	4,731	3,432	1,707	773	462
1940	3,814	2,982	1,647	784	462
1941	5,120	3,923	2,491	1,042	568
1942	5,736	4,125	2,685	1,168	546
1943	5,682	3,989	2,646	1,110	539
Males convicted of unnatural offences for the years 1939–43					
1939	37	58	41	22	10
1940	53	55	49	31	12
1941	56	57	62	38	14
1942	61	83	75	36	24
1943	66	100	116	48	19

Previous Convictions.—Of the 96 cases under review 55 had no previous convictions of any kind, 19 had one, 10 had two, and 12 had three or more. Of these, however, only 22 had been convicted for a homosexual offence. The figures are shown in detail in Table IV; they are comparable with figures extracted from the reports of the Prison Commissioners mentioned above.

TABLE IV.—*Previous Convictions*

	Nil	1 Prev. Conv.		2 Prev. Conv.		3 or More Prev. Conv.	
		Same Offence	Other Offence	Same Offence	Other Offence	Same Offence	Other Offence
Previous convictions in present series							
True inverts ..	7	4	1	0	0	1	0
Bisexuals	4	4	0	2	0	2	0
Prostitutes	0	2	0	1	0	2	0
Pseudo-homosexuals	44	3	5	1	6	0	7
Total ..	55	13	6	4	6	5	7
Previous convictions in males convicted of unnatural offences							
1939	93	27		16		51	
1940	116	35		17		45	
1941	156	35		20		39	
1942	196	44		18		43	
1943	213	60		32		75	

The Pseudo-homosexual Group

As has been stated there were 66 prisoners falling into this group. Of these, 34 were found to have some form of mental abnormality. Two were insane, six were certifiable under the Mental Deficiency Acts, and sixteen had had mental treatment in one form or another. The various disorders were as follows: post-concussive syndrome, 1; feeble-minded, 2; imbeciles, 4; epileptics, 3; personality defects, 12; schizophrenia (insane), 1; senile dementia (insane), 1; senile dementia (non-certifiable), 1; anxiety states, 4; dull and backward, 5.

One very interesting point emerged from a study of this group. The magistrates asked for a report in 39 of these 66 cases, and of the 39 no fewer than 29 are to be found in the above-mentioned cases. This suggests that the magistrates are very much on the alert for abnormalities; they "missed" only an epileptic, two anxiety states, a dull and backward case, and that of non-certifiable senile dementia. The following brief histories will show the type of case falling into this group.

Case 25.—Aged 43 years. Indecent assault on two small boys on repeated occasions. Two previous convictions for importuning. He was born in England, but spent his childhood up to the age of 8 years in Poland and then attended an elementary school until 14. He had never held any employment for long and was boarded Grade IV for the Forces. In 1933 he was charged with importuning and his mental age was found to be 8½ years. He was certified as a feeble-minded person and sent to a mental deficiency colony, but was discharged in 1945, when his mental age was considered to be 9 years. He showed no improvement; his general knowledge was defective, he was unable to reason, had no insight, and was considered to be still certifiable. The local M.D. authority agreed with this decision and accepted him back.

Case 44.—Aged 31 years. Indecent assault on boys; one previous conviction for stealing. He had exposed himself to two boys aged about 7 years and had placed his hand on their private parts. No attempt was made at masturbation, and the offence occurred in daylight. He admitted similar offences over a period of a year and also indecent assaults on little girls. He had served in the R.A.F., but was invalided with "neurasthenia." He was educated at a grammar school, and had been a clerk since leaving school. He admitted frequent masturbation and heterosexual intercourse; he still desired the latter, but said "he never had time nowadays." The police on searching his room found copious notes made by him on subjects of a heterosexual nature which at first appeared to be nonsensical, as well as portraits of nude females cut from a well-known magazine. These he used as a sexual object during masturbation. In addition a small brass bust was found which he used to sit upon while masturbating. He did this, he stated, because he had a drawing sensation in his testicles and he used the brass bust to support them. He explained the writings as a form of shorthand which he had devised and gave an explanation of what he had written that was fanciful and bizarre in the extreme.

He expressed strong antipathy to the "present constitution," by which he said he meant "the upper classes, royalty, financiers, and absentee landlords—the non-productive classes." He was introverted and had faulty insight, but he was not considered to be certifiable under the Lunacy Act. Treatment as a voluntary patient was recommended.

Case 47.—Aged 32 years. Indecent assault on a boy aged 11; no previous convictions. He was a Civil Servant, living beyond his means, but he had a record of being an intelligent and good worker. He had assaulted a small boy whom he had caught stealing fruit in his garden. He ordered the boy to drop his trousers with a view to thrashing him, but altered his mind, and, having played with the boy's privates, he persuaded the boy to play with his. He stated that this was the only occasion on which he had committed a homosexual assault. On investigation an interesting domestic tangle was unearthed. It appeared that his wife had flirted with a male friend of his after a cocktail party. This had made the prisoner jealous, and he had upbraided her and told her to go and sleep with the young man, who happened to be staying with them at the time. Mainly to frighten him, the wife went to the friend's room, entered the same bed and there was some love play though no actual intercourse. The prisoner was distraught with anxiety after this event and became impotent with his wife, though he was able to masturbate. Financial worries added to his anxiety, and he arranged to see a psychiatrist. Before he could keep the appointment he was arrested. The above story, amazing as it may seem, was confirmed by the wife at an interview. She was a dramatic, shallow creature who had broadcast the story of the "incident" to her neighbours, apparently under the impression that it sounded romantic. This man was eventually bound over and attended a psychological clinic, as recommended in my report to the court. The probation officer reported four months later that he was doing very well indeed and there was complete domestic reconciliation.

Case 90.—Aged 29 years. Gross indecency; one previous conviction for same offence seven years previously. This case is included because of the prisoner's physical condition. He was effeminate in appearance, with the female type of secondary sex characteristics and an aesthetic artistic temperament. He had served in the Army and was at Dunkirk; he was eventually invalided for "nerves." He had regular heterosexual intercourse, usually with prostitutes; he denied homosexual intercourse or desire. On the night of the offence he was awaiting a male friend and had had a good deal to drink. He went to a public urinal and a man in the next cubicle spoke to him and exposed his penis, which was erect. Mutual masturbation followed and the act was interrupted by a plain-clothes constable. There can be no doubt that the feminine appearance and mannerisms of the prisoner had attracted the other man.

The Bisexual Group

This group consisted of 12 individuals, and the distribution of offences is shown in Table I. Four had already had psychotherapy, with very little effect; four were recommended for treatment to the court; and four were considered unsuitable. In all cases there were strong homosexual and heterosexual tendencies. It is not agreed that the bisexual is more or less homosexual and does not obtain proper pleasure from intercourse with members of either sex as alleged by Allen (1940). In many of the present group almost complete heterosexual satisfaction was achieved, in some cases in homosexual intercourse as well. It was noted, however, that there was a tendency to commit the sexual act is an unnatural way. This was not so much by way of a perversion in the psychiatrical sense, but rather an indication of sheer depravity. The following case illustrates this very well.

Case 63.—Aged 41 years. Indecent assault on a boy aged 11. Three previous convictions, for indecent assaults on boys (2) and sodomy (1). He was a dullard, with a matrix S.G.5. His general knowledge was limited and he could read and write very little. He had served in the Forces, but was discharged as medically unfit, presumably because of his backwardness. He was married, but separated from his wife because she had been unfaithful with an American soldier. He was accused of interfering with a small boy sitting next to him in the cinema and encouraging the boy to rub his penis. He had masturbated from his school-days and first had sexual intercourse at the age of 15 years with a schoolgirl aged 16. Before his marriage he had a voracious sexual appetite and had frequent intercourse with women. There were also incidents with small boys, and he admitted peno-rectal intercourse. He had developed a taste for fellatio and cunnilinctus, and there was a suggestion of sodomy with women. In France he had enjoyed watching "exhibitions" and had performed nauseating variations of the sexual act with French prostitutes.

The Prostitute Group

These five persons had deliberately gone out with the intention of making money by offering themselves to men. In three cases they had attracted their victim and were arrested in the act; the other two were apprehended at the stage of importuning. The following case history is typical.

Case 73.—Aged 59 years. Importuning; one previous conviction for same offence; had had psychological treatment at a London hospital. He held a good position in a multiple boot firm, but was in financial difficulties at the time of the offence. He was a single man and had had intercourse with numbers of women. He also had homosexual experiences while in the Army during the 1914–18 war, but these had never gone further than mutual masturbation and there had been none since. Bearing his 1914–18 experiences in mind, he decided he might make money by soliciting men to mutual masturbation. He was apprehended while doing this in a public lavatory at Paddington Station. The man was unstable and showed evidence of a mild anxiety state with superadded compulsive-obsessive traits characterized by claustrophobia.

The True Inverts

As has been indicated earlier, it is this group which is of most interest to us and which has been the subject of so much correspondence. There were 13 cases, of which no fewer than eight were importuning; there were three cases of gross indecency and two of buggery. East and Hubert (1939) mention that a large proportion of such cases have other forms of perverse sexual activity; four of these cases showed obvious perversions. Allen (1940) suggests that fetishes in homosexuals are rare, but this is not confirmed. Though the fetish was not always concrete, indulgence in imagery involving masculine articles of clothing or essentially masculine features such as beards and moustaches was common. Of the 13 cases only one was interested in boys; the other 12 were attracted to men, and had never been at all interested in boys. The commonest single environmental factor was seduction in early youth or childhood, with employment in hotels or public-houses as the second most frequent. In only one instance was a history given of emotional suffering caused by a woman. Androgynous physique was present in six cases, which is probably a higher proportion than usual. The part played by the homosexual was rather more definite than is usually accepted; it was found that the individual preferences were as follows: always passive, 5; always active, 2; either active or passive, 3; mutual masturbation only, 3. Of the five preferring the passive role, three were androgynous and two were of masculine build. Of the two active men one was quite effeminate in appearance. Perversions were much more evident in those preferring the passive role; fellatio was admitted by four men.

East and Hubert (1939) state that in an investigation of a series of cases they found no evidence which led them to attach any weight to the homosexual fantasy. Careful questioning was made as to the fantasy, if any, experienced during nocturnal emissions. The result was somewhat startling. Eleven of the men had a definitely homosexual

fantasy; this sometimes amounted to no more than a dream of self-masturbation, but in some instances they experienced in their dream a complete homosexual act, usually passive, but sometimes active. One man always dreamed of committing mutual masturbation with a man very similar in appearance to himself.

Bleuler (1924) states that homosexual love shows the same signs as heterosexual love but also particularly something strikingly ecstatic and exalted. Two of the cases (Nos. 85 and 91) which are given below brought out this point with great emphasis. Emotional conflicts were present in seven of the men. One showed a simple anxiety at his condition; five had a sense of guilt, very strong in three cases; and one showed a sense of guilt plus anxiety.

Walker and Strauss (1939) suggest that the sexual impulse cannot be diverted into heterosexual channels in the case of the true invert and that psychotherapy—by a trained psychiatrist only—should be given to relieve the homosexual of a superadded neurosis and to re-educate him. This seems a very sound view. East and Hubert (1939) consider that the contraindications to treatment are repeated homosexual practices over many years; friendly but quite uninterested relations with women; the presence of other well-developed sexual perversions; and the presence of antisocial trends, whether in association with the practice of homosexuality or showing themselves in other ways. Dr. H. T. P. Young, late senior medical officer at Wormwood Scrubs Prison, states in the Report of the Commissioners of Prisons, 1942–4, that in 1943 19 prisoners convicted of sexual offences with males were unsuitable for psychotherapy for the following reasons: sentence too short, 5; intelligence too low, 6; constitutional psychopathy or organic lesion, 2; no genuine anxiety for cure, 4; other reasons, 2.

When considering the question of psychotherapy, so far as the 13 individuals in this series are concerned, facts were disclosed which will prove discouraging to those who advocate psychotherapy in all cases of homosexuality. No fewer than seven cases had had psychotherapy, and in every instance it had been administered at a well-known clinic or hospital, or by a well-known psychiatrist who has contributed to the literature on this subject. According to the patients, cures and improvements had been claimed and the courses had lasted for a considerable time and been repeated. And yet four of these "cures" found themselves in prison for the first time, having committed an overt homosexual offence. On the other hand, one of these prisoners reappeared for the fifth time. Of the remaining six cases none had had treatment. Three, however, had no desire for any, and said they would resist every inducement. One (Case 7) was too dull to be able to co-operate in any form of treatment, as well as having well-developed sexual perversions, and therapy was manifestly contraindicated. Another had already been considered by a clinic and a consultant psychiatrist and turned away as unsuitable. The last (Case 79) was an intelligent man with no previous convictions who had previously been well adjusted socially; his offence was directly attributable to heavy consumption of alcohol. A recommendation was made to the court that he might benefit from a psychotherapeutic course with a view to resolving his superadded emotional conflict and helping him to develop more socially useful tendencies. Thus out of 13 cases, in only one was there any indication that psychotherapy would be of any value whatsoever—and then only as a palliative, not as a cure. Five of the case histories are given below as illustrations.

Case 7.—Aged 32 years. Buggery; no previous convictions. A hotel porter by profession, he was a native of Eire and came to London at the age of 20. There was no morbid family history. He could read and write, but was well below average intelligence. He had never had intercourse with women and was not attracted to them in any way. In 1936 he started to work at a famous London hotel and was "seduced" by a page-boy who persuaded him to have peno-rectal intercourse. He went to live with the boy and stayed with him for two years, regular intercourse taking place all the time. The prisoner always played the active part both at this time and subsequently. When he left this hotel and went to another, homosexual activity ceased for a time. During the war, while working at another famous London hotel, it was the custom for the staff to sleep in the ballroom during air raids. It was also the custom, he stated, for homosexual activity to occur. The prisoner found a boy who attracted him, and intercourse started and continued up to the time of arrest. Frequently he sought homosexual prostitutes—always boys—and had intercourse. He had nocturnal emissions, and the fantasy was of homosexual intercourse in which he played the active part with a boy partner. There were strong sadistic tendencies, and he enjoyed inflicting pain on his paramours. He had marked anxiety symptoms and suffered from a duodenal ulcer. His insight was fair, but psychotherapy was contraindicated on account of his backwardness and the evidence of strong perversions.

Case 41.—Aged 30 years. Importuning; no previous convictions. He was a bright, well-educated man who was a brilliant musician and seemed likely to be able to follow a career as a concert pianist. Unfortunately he had suffered from nerve deafness since the age of 15. He was very effeminate in physical appearance as well as in voice and mannerisms. At the age of 16 he was indecently assaulted in a public lavatory. He had never been attracted to the female sex and had never had heterosexual intercourse. Homosexual activity started at the age of 20, but previously he had masturbated and indulged in a fantasy of rough, physically strong men. He had never gone further than intracrural intercourse and had played both active and passive parts. Strong guilt and anxiety were associated with the act, and because of this he sought the aid of a psychiatrist. Several years of treatment had had no effect either on the homosexuality or on the superadded neurosis. He was charged with importuning, and suggested that the exposure of what he called his "weakness" and the prospect of a prison sentence had been more beneficial than any previous treatment. In view of his previous lack of convictions a recommendation was made to the court that further treatment might help him to readjust himself socially.

Case 79.—Aged 48 years. Importuning; no previous convictions. This man was a fine-looking specimen, alert and intelligent, and a bank cashier by profession. He was single and supported an aged mother. He had realized he was a homosexual for as long as he could remember. He was not attracted to women, but was friendly with many and did occasionally dance with them. He had a sincere affection for his mother. Homosexual activity had only once gone further than mutual masturbation. He had on this occasion played the passive partner in peno-rectal intercourse, but was so revolted that it was never repeated. He had a strong guilt complex following mutual masturbation; the fantasy during nocturnal emissions was one of self-masturbation. He was charged with importuning and admitted the offence. He had, however, indulged over-freely in alcohol, and this was the first occasion on which he had ever committed such an act. He was allowed bail and attempted suicide before his appearance at court, but was saved by his mother. He had originally intended to murder her first, but found himself unable to do so, though he killed the cat as a start to wiping out the entire family. Considerable time was spent with this man before he went to court, and an attempt was made to re-educate him, with some success. It was strongly recommended to the court that therapy might help to alleviate his anxiety and sense of guilt and reorientate him to society.

Case 85.—Aged 64 years. Importuning; one previous conviction for the same offence. The prisoner was a well-educated sensitive man of delicate feminine appearance, with long shapely fingers and finely chiselled features. He had studied medicine in his youth and was engaged to a young lady o

good family. When he began to study gynaecology he found he was disgusted by the sight of the female genitalia, though he said he rather "enjoyed" the labour ward and parturition. He had previously had homosexual relations, and he now realized his condition; his engagement was mutually terminated with no sense of disappointment on his side. He gave up medicine, as he had private means; for a time he occasionally indulged in mutual masturbation. He then went to live with an older man, and for ten years they lived in complete harmony as lovers. They both played active and passive roles. After he parted from this man he had gone to live with another, and had done so for nearly thirty years. At first he played both parts, but later became the passive partner and had always done this since. There was a strong masochistic flavour to the act, which he described in ecstatic terms. His disgust of the female genitals had gradually been transferred to females in general, and now the very rubbing against them in a bus made him feel "unclean." He was importuning because his partner was on holiday and he felt "sex-starved." He considered nothing could be done to help him, and had no desire for treatment.

Case 91.—Aged 42 years. Importuning; one previous conviction for the same offence. He had always been attracted to men, and started intercourse at the age of 20. He had never had a regular partner and had never associated with boys. His fantasy during nocturnal emissions was of the homosexual act with himself in the passive role. He had played both parts but much preferred the passive. He had served in the Forces and was demobilized with a good character. During his service he had married an A.T.S. girl; but intercourse occurred only twice, and he was so disgusted that he could face it no longer. The wife had gone to another man, by whom she had a child, and he let her go without interference. He had never had heterosexual intercourse on any other occasion and did not desire it again. He experienced a complete tumescence during homosexual intercourse, with detumescence at the time of the orgasm of the active partner. He occasionally had an emission with orgasm but described the "other sensation" he experienced as infinitely more pleasurable, and he felt an overwhelming love for the male partner. He had no wish to be altered, and said he would resist any attempt to do so.

There is a wide divergence of opinion on how to deal with men charged with homosexual offences. At one extreme there are those who consider that such offences merit the most severe penalties; these are mostly non-medical persons, and, to be fair, non-legal. At the other extreme are those who consider that imprisonment is completely contraindicated; these are mostly medical men, and psychiatrists at that. Walker and Strauss criticize severely the penal laws on this subject and suggest that, except in the case of offences against children, homosexuality should be tolerated. They consider that sentences of imprisonment for repeated sexual offences against children serve no useful purpose, and removal to a "protected environment" for an indeterminate period is recommended. It is difficult to see how this environment would differ appreciably from a prison sentence except for the increased length of sentence.

In Kenny's *Outlines of Criminal Law* the purposes of punishment are stated to be primarily deterrent, both to the offender and to others, and reformative. Important subsidiary objects, however, are stated to be gratification of the injured person and satisfaction of the indignation of the community. In court it is often mentioned that laws were made for the protection of the community as a whole and not for the benefit of the individual; the parents of seduced children, in particular, demand retributive punishment for the offender. In offences of this nature imprisonment is more often imposed with retribution in view than in the case of other homosexual offences, where the reformative value is stressed by the court. Comparison is often made between the law in this country and in other countries as it relates to homosexual offences. Is there in fact so much difference? All are agreed on the necessity for preventing the seduction of boys, and seduction is prosecuted as vigorously in other countries as in this one. All the cases in this series committed overt acts and offended public decency. Covert homosexuality is rarely prosecuted, and I have not experienced a case in which two adult men were charged with committing homosexual acts behind closed doors. The public objects to witnessing such acts and is entitled to demand that they be suppressed.

The whole subject was admirably dealt with in a paper by East (1946). He stressed that if the modifications envisaged in the proposed Criminal Justice Bill were introduced a better understanding of the criminal by extramural psychiatrists and a wider conception of punishment as a method of treatment would be required. He also considered that, if psychiatric treatment of offenders is made a condition of a probation order, only psychiatrists of wide experience and mature judgment should undertake the work. These views were commended by Lord Cooper, the Lord Justice Clerk of Scotland, who ascribed the conflict between psychiatrists and lawyers to the fact that the former were not used to having their opinions questioned and the latter were not used to accepting other persons' conclusions unexamined. He further stated that the lawyer is not ready to accept the principle that there is a section of the community chosen by medical men whose members are free to commit crime with limited liability, or perhaps with no liability at all. To some this view may sound harsh, but it is imperative that the difference between legal responsibility and medical culpability be fully appreciated if psychiatrists are to take their proper place in helping to deal with offences of the nature discussed.

Summary

The incidence of homosexual offenders received into Brixton Prison during 1946 is discussed. These numbered 96, and a classification into four groups has been made.

The date of the offences and the age and previous convictions of the offenders have been investigated and the results tabulated, brief comments being made.

The pseudo-homosexual group, the bisexuals, and the prostitutes are examined and brief case histories given.

The group of true inverts, numbering 13, is discussed in more detail, particularly as to the effects of previous treatment. Seven had had treatment and had not shown improvement therefrom, three refused all interference, and only one of the remainder was considered likely to benefit.

A brief examination is made of the legal and social aspects of dealing with the homosexual offender and the relation of the psychiatrist.

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The Minister of Health has adopted recommendations for increasing the salaries of midwives and mental nurses employed in part-time service as follows. If employed for not more than 30 hours a week: midwifery sister, S.C.M. and S.R.N. or R.S.C.N., 3s. 1d.; S.C.M. only, 2s. 11d.; staff midwife, 2s. 5d. or 2s. 3d. according to qualifications. If required to work on occasion for a few hours in excess of 30 a week payment for the additional hours is as follows: midwifery sister, 2s. 9d. or 2s. 7d. according to qualifications; staff midwife, 2s. 1d. or 2s. Mental nurses employed for not more than 30 hours a week: female ward sister, 3s.; female deputy sister, 2s. 7d.; female staff nurse, 2s. 5d. Payment for additional hours over 30 is as follows: 2s. 8d., 2s. 3d., or 2s. 1d. according to grade.

SUDDEN DEATH AFTER INTRAVENOUS INJECTION OF A MERCURIAL DIURETIC ("NEPTAL")

BY

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While mercurial diuretics are of great value in the symptomatic treatment of oedema the dangers associated with their use should not be forgotten. The most dramatic of these untoward reactions is sudden death, which occasionally follows directly on the intravenous injection of an organic mercurial. The case here recorded demonstrates this unexpected sequel.

Case History

The patient, a married woman aged 31, was admitted to hospital on March 17 complaining of swelling of the legs (eight weeks), reduction in urinary output (five weeks), dull backache (five weeks), and haziness of vision (four weeks). She had suffered from frequent sore throat for many years, and four and a half years before admission had had an attack of rheumatoid arthritis which responded poorly to treatment with gold injections. In view of this complication the sore throats were regarded more seriously, and a tonsillectomy and complete dental clearance were performed three years previously in an unsuccessful attempt to cure the condition. Two months before her present symptoms appeared in December she underwent a ventrisuspension and appendicectomy.

On examination the patient was seen to be a pale, sthenic, well-nourished woman with a generalized pitting oedema. Fine crepitations could be heard at both lung bases, and a small palpable gland was found in the right digastric triangle. The temperature and pulse were normal, the B.P. was 130/90, and the fundi were normal, without papilloedema, kinking of vessels, or exudates. A complete examination of all other systems revealed no abnormalities.

Laboratory Investigations on Admission.—March 18:—Urine: Albumin present, 0.55 g. per 100 ml. Microscopical examination revealed occasional hyaline casts, erythrocytes, pus, and spheroidal epithelial cells. Blood: Wassermann reaction negative; blood cholesterol, 440 mg. per 100 ml.; serum albumin, 2.4 g. per 100 ml.; serum globulin, 1.8 g. per 100 ml.; blood urea, 16 mg. per 100 ml. Blood count: Haemoglobin, 76%; red cells, 3,790,000; white cells, 8,400 (neutrophils, 54%; monocytes, 4%; lymphocytes, 38%; eosinophils, 4%). The urea clearance was 61% of normal. The diagnosis was subacute (nephrotic) nephritis (Type 2 of Ellis, 1942).

Treatment and Progress Notes.—The patient was confined to bed and given a diet high in protein and low in salt, with iron tonics. On March 19 she developed a left basal pleurisy, and this persisted until death. On March 21 she had an attack of rheumatic pain in both knees, lasting for one day. On the 22nd treatment with a mercurial diuretic ("neptal") was started: 0.5 ml. was given intramuscularly, and thereafter 2 ml. every second or third day, until by April 21 a total of 24.5 ml. had been injected. Good results were observed, diuresis varying between 50 oz. (1.42 kg.) and 110 oz. (3.12 kg.) after each dose. Ammonium chloride, 15 gr. (1 g.) t.i.d., was given orally at the same time. The injections of the diuretic were very painful, and as this pain could not be prevented by preceding the neptal by a local analgesic (procaine) the intravenous route was adopted, to the patient's relief. Two ml. was given intravenously on April 23, 25, 28, and 30. After the last injection she complained of giddiness, and became pale for a few seconds, shortly after the needle had been withdrawn.

On May 1 the patient complained of a sore throat and generalized joint pains. Her knees became swollen and a patellar tap could be elicited on both sides. On the 3rd 2 ml. of neptal was injected into the right median cubital vein, this taking about one minute to carry out. Immediately on withdrawing the needle the patient turned pale and fell back unconscious. Cyanosis rapidly supervened, and breathing, which had become gasping, ceased about two minutes after the onset of the attack. A convulsion occurred, with jerking of both arms, and the pupils became widely dilated before death. Artificial respiration was carried out, with intranasal oxygen for twenty minutes, and 1.7 ml. of nikethamide was given intramuscularly and the same dose intracordially, without avail.

The manner of death observed in this patient bore a close resemblance to that witnessed in another person dying of a terminal coronary infarct about the same time. Both of these patients displayed a syndrome of primary cardiac arrest followed by cyanosis, convulsions, and eventual cessation of respiratory movements. On clinical grounds, therefore, it appeared that the injection of neptal brought about a sudden cessation of the heart-beat, presumably by ventricular fibrillation.

Necropsy.—This revealed the large pale kidneys of subacute glomerular nephritis and a left-sided pleural effusion. A small adherent clot was present in one of the cubital veins, but no sign of embolism could be found. Chronic poisoning by mercury could be excluded as there was no stomatitis or haemorrhagic colitis. About 1 or 2 ml. of air was found in the heart. The most probable explanation is that this air was injected into the heart after death during the intracordial injection, for in performing this the needle first encountered lung, and air was withdrawn into the syringe.

Discussion

Since 1925, when Redlich drew attention to three fatalities after intravenous injections of a mercurial diuretic ("novasurol"), more than a score of deaths attributable to this cause have been recorded. Although the deaths reported by Redlich do not appear to have been directly due to the mercury (one died of a Jarisch-Herxheimer reaction, another from salvarsan encephalitis, and the third—Redlich's own case—from an intestinal obstruction) his report does seem to have stimulated interest. Numerous subsequent cases have been recorded in which the mercurial has been more convincingly incriminated, and from these cases and the animal experimentation which they stimulated it is now possible to come to definite conclusions about the immediate action of mercurials on the heart. These findings are summarized below.

1. Type of Patient

Sudden death after an injection of a mercurial diuretic has occurred in children as well as in young, middle-aged and elderly patients suffering from such varied conditions as nephritis, nephrosis, cirrhosis of the liver, and heart disease of rheumatic, syphilitic, congenital, coronary, or hypertensive origin. DeGraff and Nadler (1942) have stated that inflammatory disease of the kidney is a contraindication to the use of mercurial diuretics: certainly most of these accidents occurred in cases of nephrosis and Type 2 nephritis, and Evans and Perry (1943) suggest that a lowered plasma protein may be a factor of significance. Nevertheless this toxic effect has been demonstrated on healthy experimental animals, and it would seem that death is the result of a direct action on the heart.

2. Type of Diuretic

In human cases "salyrgan" and "mercupurin" have caused most of the deaths (Ben-Asher, 1945; Sundana 1934; Brown *et al.*, 1942; Barker *et al.*, 1942), but deaths are also reported following "esidrone" (Volini *et al.* 1945), "mersalyl" (Evans and Perry, 1943), and neptal (Greenwald and Jacobson, 1937). Animal experiments also demonstrate variation in toxicity, esidrone and mercupurin being singled out for especially unfavourable mention by Pines *et al.* (1944). DeGraff and Lehman (1942) found that esidrone was more toxic to cats than either mercupurin or salyrgan. Nevertheless on theoretical grounds it seems likely that any organic ionizable mercurial diuretic will be capable of producing sudden death of this type.

3. Route of Administration

So far all but one of the deaths have followed an intravenous injection, the exception being the case of Wolf and Bongiorno (1931), in which an intraperitoneal injection was to blame. It should be borne in mind, however, that DeGraff and Lehman were able to kill dogs with large intramuscular doses: in humans, therefore, it is possible that fatal reactions may also follow intramuscular injections of the mercurial, though this is very unlikely, since rapid elimination would normally prevent the injection from reaching toxic levels.

4. Cause of Death

The manner of death in all these cases has been almost identical. Apparently the heart stops beating before the respiration ceases, and convulsions occur which are probably due to anoxia. This usually takes place within ten minutes of the injection, though in one instance as much as half an hour elapsed before the terminal episode.

Death may occur after the first injection. This has been reported four times—viz., by Sundaram (1934), Cadbury (1936), Barker *et al.* (1942), and Volini *et al.* (1945). These four cases are of great significance, for their occurrence excludes the possibility of cumulative poisoning with mercury as a cause of death, and also rules out anaphylaxis or sensitization, both of which have been considered (Tyson, 1941; Evans and Perry, 1943; Rennie, 1945) in spite of the absence of any clinical evidence in favour of these diagnoses.

Hyman (1942) suggested that these patients died from "speed shock"; but this cannot be accepted, as the clinical picture of "speed shock" is different (salivation, vomiting, diarrhoea, irregular respiration, fall in blood pressure, and bronchospasm). Conclusive evidence to the contrary is provided by Wexler and Ellis (1944), who demonstrated that blood drawn from the patient immediately after death was capable of clotting, since in "speed shock" such blood will be found to be incoagulable.

A considerable weight of evidence has been accumulated to indicate that these deaths are due to the direct toxic action of the mercury ion on the heart. This action was first demonstrated with inorganic salts of mercury by Salant and Kleitman in 1922; they showed that the mercury ion was capable of inducing ventricular fibrillation, which neither bilateral vagotomy nor atropinization could alter. Salant and Brodman (1929) state that adrenaline improves the heart poisoned by mercury while ergotamine increases mercurial toxicity. The same action was demonstrated in the organic mercurial diuretics by Jackson, who in 1926 produced ventricular fibrillation in dogs with salyrgan. His work has been confirmed by other investigators with other diuretics (DeGraff and Lehman, 1942; Pines *et al.*, 1944). From his experiments on the isolated turtle heart Johnston (1941) came to the conclusion that the toxic action of the organic mercurial diuretics was a side action related to their mercury content, and consequently was not essentially different from that of inorganic salts like calomel and bichloride of mercury.

However suggestive they might be, animal experiments alone could not prove that human fatalities were also the result of ventricular fibrillation. This final step has been completed by the unique studies of Volini, Levitt, and Martin in 1945; for in two of their three patients killed by mercurial diuretics simultaneous electrocardiograms were obtained which demonstrate that ventricular fibrillation was the cause of death.

The unpredictable behaviour of the drugs still remains to be explained. Some patients die at the first injection, while others receive many injections only to succumb after an injection differing apparently in no way from its harmless predecessors—for example, the patient of Wexler and Ellis's (1944) who received a total of 164 ml. before the fatal dose of mercupurin, or the case reported by Barker *et al.* (1942) in which it is estimated that more than 200 injections of mercurial had been given before the one that proved fatal.

5. Premonitory Indications

The occurrence of subacute reactions after any injection of mercurial diuretic should be regarded seriously, and would indicate the need for smaller doses or a different route of administration. Unfortunately such warning is not always given. The case history recorded above demonstrates one warning the significance of which was not appreciated at the time—namely, the attack of giddiness after the penultimate injection. In three out of the four cases quoted by Brown and co-workers (1942) warning symptoms were observed at previous injections. These included dyspnoea, orthopnoea, sweating, pallor, bradycardia, and syncope. Wexler and Ellis have described the immediate non-fatal reactions as of four types: (1) a subjective, indescribable, unpleasant sensation; (2) transitory dyspnoea; (3) apprehension, substernal discomfort, slight increase in respiration and pulse rate, and orthopnoea; (4) moderate collapse, cyanosis, and sweating. The occurrence of any reaction should receive serious consideration.

6. Treatment

In human cases recovery is rare. Tyson (1941) reports the case of a young male nephrotic who became unconscious after 1 ml. of esidrone, with a convulsion, deep cyanosis, dilated pupils, and absent heart sounds. This patient recovered after artificial respiration, adrenaline, nikethamide, and aminophylline had been administered. Andrews (1931) reports a similar case of recovery in a young woman with rheumatic valvular disease, in which consciousness was lost, but the heart did not stop beating, although seriously affected.

On the isolated turtle heart Johnston (1941) found that nikethamide was of no use in treatment but that sodium thiosulphate would restore to normal rhythm a poisoned heart in complete block. Further, if perfused at the same time, this substance would prevent the action of the mercurial. DeGraff and Lehman have confirmed this for the cat. To apply this fact to the treatment of the human being poisoned with a mercurial diuretic would be difficult, although possible. Fortunately, prevention of fatalities is considerably easier than cure.

7. Prevention

The discontinuance of these drugs has never been suggested. A proper perspective of their toxicity will be obtained if it is realized that even when given intravenously they are less toxic than the arsphenamines (DeGraff and Nadler, 1942).

Route of Administration.—In his textbook White (1944) says that the mercurials are "preferably given intravenously" (p. 783); nevertheless since all recorded fatalities have followed intravenous and intraperitoneal injection of these drugs, these two routes should be used no longer. The pain of intramuscular injections might be prevented by infiltrating the injection site with an anaesthetic of long duration, such as "proctocaine."

Choice of Drug.—Esidrone, salyrgan, and mercupurin have been mentioned most frequently as causes of death. They might well be avoided unless it is proved that this frequency was due to their popularity rather than their extra toxicity.

Adjuvants.—Pines and co-workers (1944) found that if 0.5 ml. of 20% magnesium sulphate was injected

simultaneously one could prevent the onset of ventricular fibrillation in dogs even when seven times the normal lethal dose was given. This has considerable clinical significance. Magnesium sulphate should be added to all mercurial diuretics intended for injection. Theophylline is of proved value as an adjuvant, for it not only increases the rate of renal excretion of the mercurial but also serves to reduce the toxicity of certain of these compounds (DeGraff and Nadler, 1942); nevertheless deaths have occurred in spite of its presence.

Other Drugs.—The common cardiac drugs, digitalis, aminophylline, ammonium chloride, and phenobarbitone, have no effect on the toxicity of mercurials (DeGraff and Nadler, 1942).

Rate of Injection.—Contrary to what might be expected, DeGraff and Lehman (1942) found that injecting the mercurial slowly only increased its toxicity. They demonstrated in cats that the slower the injection the smaller the lethal dose, the curve flattening out at a rate of 40 minutes per ml., at which point the toxicity was about three times that of a rapid injection. Human cases have confirmed that dilution is of no value, and fatalities have been reported with dilutions of 1 in 10 (Sundaram, 1934; Barker *et al.*, 1942; Evans and Perry, 1943).

Summary

A case is presented in which sudden death followed the intravenous injection of a mercurial diuretic. Death is presumed to have been due to ventricular fibrillation.

Similar cases are described in the literature, also following the intravenous injection of these drugs. Treatment should consist of intracardiac adrenaline and sodium thiosulphate.

To prevent such sequelae mercurial diuretics should never be given by the intravenous route. The addition of magnesium sulphate to the injection promises to lower its toxicity considerably.

I wish to thank Prof. W. H. Craib for permission to publish this case. I am grateful to Prof. A. S. Strachan and to Dr. Laubser, then of the Medico-Legal Laboratory, Johannesburg, for their interest and assistance, and to Dr. M. McGregor for his criticism.

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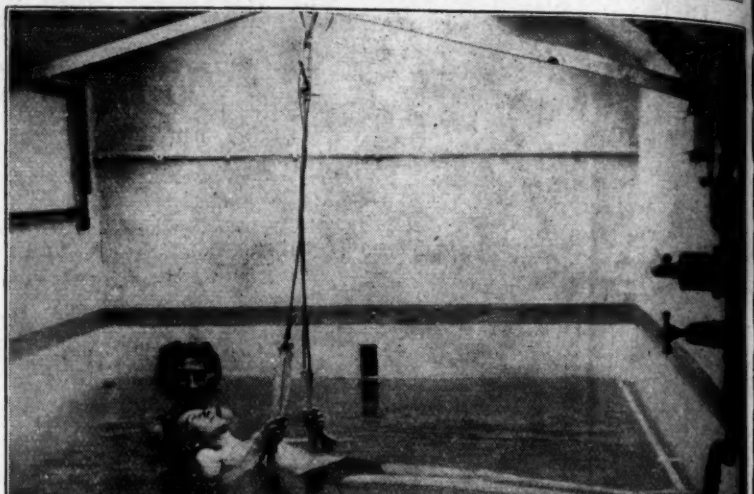

PLUNGE BATH FOR CASES OF POLIOMYELITIS

The present increase in the number of patients suffering from anterior poliomyelitis has presented problems of treatment not ordinarily encountered in general hospital practice. An underwater therapy pool was constructed within three weeks at the County Hospital, Farnborough, Kent, and the following description by the hospital steward may prove of interest.

To meet an emergency, application was made to the Kent County Council Public Assistance Officer to utilize a building which had formerly been devoted to casual ward accommodation. Permission was promptly given, and in less than three weeks the building was converted into a plunge bath 11 ft. 6 in. (3.5 m.) by 8 ft. 6 in. (2.6 m.) to be used for the underwater treatment of patients suffering from anterior poliomyelitis.

This was effected by constructing a small dam wall across the width of the room and making the walls and floor watertight. The bath is filled with water of the right temperature through a mixing valve, and in order that it may be maintained at a continuously even temperature a thermal control unit has been installed. The bath may be filled to a depth of 3 ft. 6 in. (1 m.) and is equipped with hand rails, slings, etc. An adjoining room has been fitted with dressing cubicles.

The facilities thus provided make it possible to deal with several patients at the same time instead of singly, and the bath replaces an emergency collapsible water dam which was kindly loaned and erected by the Bromley N.F.S. at short notice.

The whole of the work was carried out by the hospital engineering and maintenance staff with the valued advice of the County Architect's Department.

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A circular from the Ministry of Health on the transfer of headquarters hospital staffs to the Regional Hospital Boards under the National Health Service Act points out that the transfer concerns those officers employed immediately before the appointed day "solely or mainly at or for the purposes of any hospital transferred to the Minister" (other than teaching hospitals). Local authorities have been asked for a statement of the numbers and types of staff employed on such work for more than half their time who would be liable for transfer. Many authorities, however, have found it impossible to provide a satisfactory list on this basis. The circular suggests, therefore, that they must relate the number of staff transferred to the amount of work transferred and assess the hospital part of the work in terms of units of staff in different grades. The estimate will be only approximate but should afford both a reasonable guide to the Regional Hospital Board's requirements and a general formula for providing lists of officers for transfer. Replies should reach the Ministry by Oct. 30.

Reviews

CONSIDER THE MOUSE

Animal Genetics and Medicine. By Hans Grüneberg, Ph.D., M.D. With foreword by Sir Henry Dale, O.M., G.B.E., F.R.S. (Pp. 296; 33 illustrations. 21s.) London: Hamish Hamilton Medical Books. 1947.

Dr. Grüneberg is to be warmly congratulated on having written a book which we may expect to have a profound influence on medical research in the immediate future. He is well known among geneticists as one who, excelling both in genetics and in medicine, has devoted his outstanding intelligence, technical skill, and knowledge to the most careful and comprehensive study of the gene in action in the production of pathological characters in the mouse and rat. He is at once geneticist, embryologist, anatomist, and pathologist, and in addition is a writer of clear, concise, and attractive English. In writing this book he had two main aims. One was to demonstrate that there are a considerable number of inherited conditions in rodents of which some are very similar to clinical entities in man. The other was to show that the study of conditions which have no known close counterparts in man can reveal new aetiological mechanisms which may help us to understand human diseases apparently very different from them. He achieves both these aims and goes far towards proving his contention that the systematic and co-ordinated study of inherited diseases in these animals should be considered a new branch of medical science.

Often in the search for the causal factor of disease and for an understanding of the ways in which this cause effects its result man himself is not the best experimental material. Often in medicine a variety of conditions are grouped under a common diagnostic label, and conversely the same disease aetiologically is classified under more than one name. This criticism does not apply to inherited diseases in the experimental animal. In the case of man the interplay of nature and nurture in the causation of a disease commonly makes it exceedingly difficult to determine which of the two plays the major part. The circumstances of the experimental animal's environment can be stabilized. In man an obvious and simply inherited pathological condition is rare, while in the experimental animal it can be produced in any number desired, since matings can be controlled. Little can be known in man of the early stages in the development of a pathological condition of this kind, whereas a series of experimental animals can be killed at any stage and the sequence of events recorded in their proper order.

In medicine active research is proceeding to determine the causes and the manner of development of diseases of the different organ systems. In the field of genetics similar and allied mutant conditions are regarded as inherited characters of interest and usefulness, since they are so easily recognized and traced in their transmission through the generations. At the present time there is insufficient liaison between these two fields of activity, with the result that genetics cannot yet make its maximum contribution to the solution of medical problems. For example, the paediatrician is interested in harelip and cleft palate as a problem in clinical medicine. Would it not profit him to consider the mouse, in which this condition is a well-recognized genetical entity?

The following conditions are extracted from the text of Dr. Grüneberg's book as illustrations of the great attractions it offers to those whose material is the human subject. In the mouse: pseudo-encephaly, spina bifida, absence of the corpus callosum, otocephaly, hydrocephaly, epilepsy, coloboma retinae, macrocytic anaemia, siderocyte anaemia, polydactyly, stenosis of the oesophagus, imperforate vagina, and hypotrichosis cystica. In the rat: epilepsy, microphthalmia, diabetes, siderocyte anaemia, and congenital cataract. In the rabbit: syringomyelia, otocephaly, spastic spinal paralysis, epilepsy, coloboma retinae, congenital cataract, keratitis, chondrodystrophy, homoeotic variations of the vertebrae, hypospadias, and hyperkeratosis cutis et follicularis. In the guinea-pig: otocephaly, microphthalmia, and chondrodystrophy. A long list of other eye, foot, skin, kidney, and tooth anomalies, locomotor disturbances, and endocrine disorders in one or more of these different species could be given. All these conditions have been demonstrated to be genetically caused, and, as Dr. Grüneberg points out, the action of the genes concerned upon the processes of development or upon those of degeneration can be quite easily followed by appropriately designed investigations. Manifestly it would be greatly to the advantage of an embryologist, pathologist, or clinician considering these or similar conditions in man to undertake or to encourage parallel investigations with the most suitable animal material.

This is indeed an exciting book, provocatively written and easily sustaining this thesis, which surely must be of the greatest interest to all engaged in advancing medical science. It is a thousand pities that the circumstances of the times have made it necessary for the publishers to use a paper unworthy of the subject matter that it bears and to price the book beyond the means of many who would wish to possess it.

F. A. E. CREW.

TEXTBOOK OF ALLERGY

Allergy in Theory and Practice. By Robert A. Cooke, M.D., Sc.D., F.A.C.P. (Pp. 572; illustrated. 40s.) Philadelphia and London: W. B. Saunders Company. 1947.

In writing this book Dr. Cooke has had the assistance of 13 collaborators, most of whom are well known from their previous publications. Their aim has been to record the facts of allergy and, "while realizing the existing limitations of information and possible errors of interpretation," to co-ordinate them. The authors have considerable practical experience and largely accomplish their intention. Nomenclature is discussed clearly and straightforwardly. Walzer gives a good account of skin testing. Chobot considers that desensitization to food is ineffectual, and regards the value of the oral method with drop-by-drop increases as unproved. Writing on urticaria, Cooke states that 35% of the cases which attend for diagnosis are due to infection, 10% to foods, and 10% to drugs, while the aetiology of the remaining 45% is at present unknown. Asthma is classified as non-infective and infective.

Dr. Cooke pleads in a foreword that allergy be given its due place in the curriculum of medical schools. The basic principles should be taught during the earlier years of training. In the clinical years a few lectures, perhaps four, might be given, and a case of allergy allocated occasionally to the student so that he might learn how to take an adequate history of this kind and be initiated into the special techniques used. All that Cooke says applies equally to Britain. Allergic disease is probably just as common here as in America, where 7 to 10% of patients in general practice are said to present problems in allergy. This is a well-composed and reliable textbook of allergy for the postgraduate.

D. A. WILLIAMS.

TREATMENT WITH HEPARIN

Heparin in the Treatment of Thrombosis. An Account of its Chemistry, Physiology and Application in Medicine. By J. Erik Jorpes, M.D. Second edition. With foreword by Prof. J. R. Learmonth, Ch.M., F.R.C.S.Ed. Oxford Medical Publications. (Pp. 260; illustrated. 18s.) London: Geoffrey Cumberlege (Oxford University Press).

In recent years the prevention and treatment of thrombosis by natural and synthetic anticoagulant substances have attracted considerable attention, particularly in America and the Scandinavian countries. The present monograph, written in excellent English, is by a foremost Swedish authority on this subject. Dr. Jorpes is a biochemist, but in his book he reveals a remarkable knowledge of the clinical and social problems associated with thrombo-embolic conditions. The book is in two parts: the first devoted to "The Chemistry and Physiology of Heparin," and the second to "Heparin and Thrombosis." The first half will be of greater interest to physiologists and biochemists than to clinicians, though the latter will welcome the fine tribute which the author pays to Howell's pioneer work, the fascinating story of the work which led to the conclusion that the mast cells of Ehrlich are responsible for the production of heparin, and the explanation of the difficulties that have to be overcome in preparing and standardizing heparin. In this connexion it is gratifying to note that due credit is given to the work done by Best, Murray, and others in Toronto.

In the second half of the book Dr. Jorpes discusses the use of heparin in the prophylaxis and treatment of thrombosis. Considering principally the problems of post-operative thrombosis and pulmonary embolism, he presents statistics from a large number of Swedish clinics which show that heparin can very considerably reduce the mortality and morbidity from these conditions. He advocates intermittent intravenous injection rather than continuous heparinization by infusion as the method of administration, and those interested will find adequate information on dosage and duration of treatment. He also discusses the use of heparin in thrombosis of the retinal veins, mesenteric thrombosis, subacute bacterial endocarditis, vascular surgery, and the prevention of pleural and peritoneal adhesions. Although the book is primarily about heparin, the author devotes two chapters to the synthetic anticoagulant dicoumarol. He has less personal experience with the use of the latter, but nevertheless his warning against the indiscriminate use of a drug which produces "a kind of toxic narcosis of the liver cells, the depth of which is difficult to control" is well justified. Surgeons and others interested will find that the book is also a valuable source of information on the incidence of thrombosis and the mortality from pulmonary embolism.

This is an authoritative and timely monograph. The evidence presented ought to stimulate clinicians interested in these problems to press for the production of adequate and cheap supplies of a reliable heparin preparation in this country. The book is well produced, but it is disappointing to find several discrepancies between the references in the text and the bibliography.

R. L. Richards.

LABORATORY METHODS

Chemical Methods in Clinical Medicine. Their Application and Interpretation with Techniques of Simple Tests. By G. A. Harrison, M.D., B.Ch. Third edition. (Pp. 630; 5 colour plates and 120 illustrations. 40s.) London: J. and A. Churchill. 1947.

The new edition of this standard work incorporates accounts of the latest laboratory methods. Dr. Harrison has added much new material, maintaining the usefulness of the book without unduly enlarging it. His own experience has evidently guided him in making the alterations, and this enhances their value. As he mentions in the preface, the book is also his own "journal" and includes observations that might have been the subjects of special papers. Laboratory workers and clinicians will find many aids to interpretation, though the author comments, "There is a reasonable chance of interpretation of analyses being correct only if essential clinical findings are known. . . ." He is well qualified to emphasize the principles on which such interpretations should be based.

Innovations include references to situations in which laboratory analysis may be used to control treatment, and a discussion on fluid therapy and its control. The author has revised the subject of body pigments and included a new chapter on the pathological pigmentations. He gives a more critical and up-to-date interpretation of the value of the van den Bergh reaction and of gastric analysis. He displays much originality, and we would note particularly the account of modifications to standard instruments used in his own laboratory.

Though the author has devoted much space to recent advances, he still stresses the more fundamental and simple observations on urine and faeces which are of such importance in clinical pathology. More emphasis on the use of milli-equivalents per litre would have been appropriate at this time in those passages where electrolytes in body fluids are discussed. Study of this book will help clinicians to understand more completely the work done by the clinical laboratory.

G. Prunty.

Dr. Arnold John Teal claims in *Water Supplies, Hepatitis, Associated Diseases and Fungi Infested Water in Assam* (Jorhat, Assam: Doss and Co.; Rs. 2.8) that infective hepatitis in Assam and North Bengal is a "water virus" disease affecting to a variable extent all the endocrine and secretory glands, the heart, and the nervous system. He states that in almost all cases the disease starts at birth, reinfection continues in varying degrees until death, and often many general and tropical diseases are secondary to it. He provides no valid evidence in support of these convictions. There is little in this monograph to commend it.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

Diseases of Metabolism. Edited by Garfield G. Duncan, M.D. 2nd ed. (Pp. 1,045. 60s.) Philadelphia and London: W. B. Saunders Company. 1947.

Includes new material on the thyroid gland, disorders of the kidney, fluid balance, disturbances in nutrition, and folic acid.

Therapeutic Exercise. By H. F. Ewerhardt, M.D., and G. F. Riddle, B.S., R.N., R.P.T. (Pp. 152. 12s. 6d.) London: Henry Kimpton. 1947.

A manual for students of physical education, occupational therapy, and physical therapy.

Roentgen Interpretation. By G. W. Holmes, M.D., and L. L. Robbins, M.D. 7th ed. (Pp. 398. 35s.) London: Henry Kimpton. 1947.

Outlines the interpretation of *x*-ray photographs, with many illustrations.

Occupational Diseases of the Skin. By L. Schwartz, M.D., L. Tulipan, M.D., and S. M. Peck, B.S., M.D. 2nd ed. (Pp. 964. 63s.) London: Henry Kimpton. 1947.

An account of industrial skin diseases, their prevention and treatment; with illustrations, bibliographies, and a list of chemicals known to be skin irritants.

Methods of Diagnosis. By L. Clendening, M.D., F.A.C.P., and E. H. Hashinger, M.D., F.A.C.P. (Pp. 868. 63s.) London: Henry Kimpton. 1947.

After discussing the general principles of diagnosis, the author considers history-taking, examining each region of the body, and laboratory procedures.

Modern Treatment Year Book 1947. Edited by Sir Cecil Wakeley, K.B.E., C.B., D.Sc., F.R.C.S., F.R.S.Ed., F.A.C.S., F.R.A.C.S. (Pp. 354. 15s.) London: The Medical Press. 1947.

Includes articles on the treatment of influenza, of a premature baby, of gonorrhoea and syphilis, of acne, and of myasthenia gravis.

The Doctor's Job. By Carl Binger, M.D. (Pp. 243. 12s. 6d.) London: George Allen and Unwin. 1946.

An account for the layman of recent advances in medicine.

Trial of Thomas John Ley and Lawrence John Smith. Edited by F. Tennyson Jesse, F.R.L.S. (Pp. 313. 15s.) London: William Hodge and Co. 1947.

An account of the "chalk-pit murder."

Utility Nurse. By Margaret Crisp. (Pp. 101. 5s.) London: Chaterson, Limited. 1947.

The life of a Red Cross nurse in wartime.

Physical Treatment of Injuries of the Brain and Allied Nervous Disorders. By K. M. Hern, M.C.S.P. (Pp. 96. 10s. 6d.) London: Baillière, Tindall and Cox. 1947.

Describes the methods of treatment employed at the Military Hospital for Head Injuries, Oxford.

Obstetrical Practice. By Alfred C. Beck, M.D. 4th ed. (Pp. 966. 38s. 6d.) Baltimore: The Williams and Wilkins Company. 1947.

Includes new material on analgesia and anaesthesia, penicillin in the prevention of congenital syphilis, and implantation of the ovum.

Health the Unknown. By John Comerford. (Pp. 144. 7s. 6d.) London: Hamish Hamilton. 1947.

An account of the Peckham Health Centre.

British Surgical Practice. Vol. 1. Edited by Sir Ernest Rock Carling, F.R.C.S., F.R.C.P., J. Paterson Ross, M.S., F.R.C.S., *et al.* (Pp. 486. £3.) London: Butterworth and Co. 1947.

Includes articles on abortion, achlorhydria and appetite, adiposity, allergy, amoebiasis, and artificial limbs.

Retropubic Urinary Surgery. By Terence Millin, M.A., M.Ch., F.R.C.S., F.R.C.S.I. (Pp. 208. 25s.) Edinburgh: E. and S. Livingstone, Limited. 1947.

A monograph on the author's retropubic approach to various surgical problems, with many illustrations, some in colour.

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THE CONTROL OF AIR-BORNE INFECTION

It has been evident for years that modern sanitation, so successful in almost every other field, has made comparatively little impression on the problem of air-borne infection. This is not the fault of neglect, since the subject has been studied on a steadily increasing scale for the past twelve years, and with added urgency and vigour during the war. The problem has been more accurately defined by most illuminating studies of the mechanism of air-borne infection, and remedies have been sought in two main directions: the mechanical removal or suppression of infected particles, and the disinfection of air by physical or chemical means. There is now abundant information about what can be achieved by such methods, and it is not too soon to inquire how useful they are likely to prove in various circumstances. The lecture to the Royal College of Surgeons by Prof. R. J. V. Pulvertaft, printed in the opening pages of this issue of the *Journal*, is such an assessment of the present position. His conclusions may be compared with those of two official pronouncements which have recently appeared in the U.S.A., entitled "The Present Status of the Control of Air-borne Infection," and "Dust and its Control as a Means of Disinfection of Air."[1] These are condensed and well-documented reviews prepared by influential committees of the American Public Health Association, which evidently feels that some guidance is called for in these matters.

The hospital ward containing patients infected by readily cultivable and recognizable bacteria such as haemolytic streptococci has been a fruitful field of study, and poses the problem of air-borne infection in its most definite form. Conclusions reached and remedial methods employed in this environment may well be applicable to others, more particularly sleeping quarters generally, but it is helpful first to define our knowledge of how to prevent cross-infection in wards. As Pulvertaft points out, there are two distinct ways of doing this, one being to protect the air from contamination, and the other to disinfect it. Measures directed to the first of these objects are the wearing of efficient masks, controlled ventilation, and the suppression of dust. The designers of future hospitals will require very definite advice on the subject of ventilation; more particularly they will want to know whether a simple abundance of fresh air is all that is needed, or whether it is necessary to control the direction of air currents. It should be easy to avoid the common and dangerous error of ventilating operating theatres by extraction fans, which results in air being sucked in under doors carrying floor dust with it. But what are the necessary applications of the opposite principle, studied by Bourdillon—the production of a positive pressure of filtered air over the patient, so that air travels from him to possible sources of infection and not *vice versa*? It is doubtful whether any feasible system of ventilation will remove the necessity for separate measures directed to the suppression of dust. Opinion is unanimous that these are necessary, readily feasible, and effective. The system of oiling floors and fabrics first introduced in this country appears to have been brought to a high degree of technical perfection in the U.S.A., and the American report on dust control already cited strongly endorses its value.

An alternative or additional method is to disinfect the air itself. With certain reservations this is practicable by several methods. Ultra-violet light is the simplest and cheapest of these. It is generally applicable only to the upper air of inhabited rooms, since direct exposure to the light is harmful; but it seems to have been successful in diminishing the spread of infectious disease in schools and elsewhere. Chemical disinfection is also feasible by means of exceedingly low and, so far as is known, quite harmless concentrations of sodium hypochlorite, phenolic substances such as hexyl resorcinol, lactic acid, or triethylene glycol. The last named has been the subject of intensive study in the U.S.A., where methods have been perfected for producing the required concentration in the air, and even for regulating it automatically, the apparatus concerned being known as a "glycostat." Triethylene glycol depends for its full effect on a fairly high relative humidity. Hamburger and his colleagues[2] have shown that this is not an essential condition. During a period of fine weather with low humidity they were able by means of triethylene glycol to reduce the haemolytic streptococci in the air of an Army hospital ward by 88% during quiet periods and 54% during bed-making: it should be added that all the patients in this ward were nasal streptococcus carriers, selected and admitted for the purpose of these tests. But this result was made possible only by the simultaneous employment of dust-control measures, including the oiling of floors and bedclothes. Air disinfection is chiefly effective against the finer particles directly expelled from the air passages; indeed, most of the evidence of its efficacy is based on experiments in which bacteria were sprayed as fluid droplets. Against larger particles classifiable as dust it is not so dependable.

What is the practical usefulness of such measures as these? The American report does not venture to pronounce judgment on the respective merits of ultra-violet light and triethylene glycol as air disinfectants. It is, on the other hand, very definite about the possible scope of usefulness of either. There is a strong case for using them in controlling air-borne infection in hospitals, and particularly in fever and children's wards. In schools, barracks, and "specialized industrial environments" their general use is not justified until further knowledge has been gained, and "homes, offices, and places of public congregation" are placed in a third category as even less suitable for such attempts. These are in general the conclusions reached by Pulvertaft, but he makes a useful point in distinguishing between adults and children, regardless of environment,

[1] *Amer. J. publ. Hlth.*, 1947, **37**, 353.

[2] *J. infect. Dis.*, 1945, **77**, 177.

because the latter have less immunity and "spend much of their time in homogeneous groups." If a beginning is to be made outside the hospital sphere the school is certainly the place for it. He also points out that measures would be justified during a pandemic of a new or rare infection—or, it might be added, during a severe epidemic of any infection—which are not called for under ordinary conditions.

It is disappointing that all this effort should apparently have brought us no nearer to diminishing the incidence of the common cold, or to improving the sanitary quality of the atmosphere in public places. Colds and other non-specific infections of the air passages are far more important in terms of discomfort and loss of time and efficiency than any of the more dangerous infections which we are now so well able to control. Pulvertaft is probably right in concluding that conditions in crowded public transport vehicles are sometimes such that no known method of air sterilization could possibly operate. But his argument that constant exposure to infection is necessary to immunity, and therefore, presumably, that conditions may just as well be left as they are, is a counsel of despair. It is a poor sort of immunity that is bought at the cost of two or three colds per annum, which are the lot of the average individual. That these are natural and inevitable under urban conditions we refuse to believe. It is of course not yet by any means certain that aerial transmission is the only, or even the most important, factor in the spread of the common cold. In so far as it is, better air sanitation in densely populated places is much to be desired, and the efforts of the past twelve years will not have attained full success until this aim has been achieved.

BRITISH ANTI-LEWISITE

Although much work was done during the war both in this country and in the U.S.A. on weapons of chemical warfare, these weapons were not used. The work, however, proved of value in an unexpected direction, for no fewer than three discoveries were made in the field of new medicaments. We have recently learnt of the benefit given by "nitrogen mustard" to patients with leukaemia and with Hodgkin's disease; we are learning of the treatment of myasthenia gravis by di-isopropylfluorophosphonate; and, most important of all, BAL or dimercaptopropanol is now soundly established as a means of treating poisoning by arsenic. We reviewed work on this substance in a leading article about a year and a half ago.[1] There is evidence that it can be used for treating poisoning by mercury and gold as well. A report is found on another page in which a committee of the Medical Research Council gives its blessing to this new therapeutic agent, the report being based on the results obtained in 44 cases of arsenical dermatitis. This report confirms what was already known from work done both in this country and in the U.S.A. Carleton, Peters, Stocken, Thompson,[2] and their colleagues described their first observations on the effect of BAL in arsenical dermatitis, undertaken because it had been shown that BAL reversed the toxic action of mapharside in animals. They found that in some cases the dermatitis disappeared within five days, and that in about half the 30 patients there was substantial benefit. At the Johns Hopkins Hospital Longcope, Luetscher, Wintrobe, and Jäger[3] obtained results entirely similar, noting that patients in whom dermatitis occurred after three or more doses of arsenic recovered with unexpected rapidity when treated with BAL. Luetscher, Eagle, and Longcope[4] found a "consistent increase" in the urinary excretion of arsenic after treatment of dermatitis with BAL, corresponding "with the good clinical response of these patients."

Less good results are obtained so far as other symptoms produced by arsenic are concerned. The most extensive account is that of Eagle and Magnuson,[5] who have examined 227 cases; of these, 55 were suffering from encephalitis, and the effect of BAL in improving their condition was uncertain; of 14 patients with jaundice, 7 were not improved by BAL, but 5 were improved; the blood bilirubin fell in 3 of these. On the other hand, of 11 patients with arsenical agranulocytosis 10 were rapidly improved by BAL with an increase in total white count and in polymorphs; of 44 patients with fever due to arsenic therapy most were restored to normal by BAL. In this series the usual good effect of BAL was obtained in dermatitis.

Perhaps the next most important use of BAL is for the treatment of mercury poisoning. As its chemical name, dimercaptopropanol, implies, BAL is a substance which can capture mercury; this was demonstrated in animals by Gilman and his colleagues,[6] who found that BAL was active against mercury, as against arsenic, even when treatment was delayed. Thus dogs receiving 4 mg./kg. of mercuric chloride intravenously, a dose which was invariably fatal when given alone, were completely protected from the renal effects of mercury by three doses of BAL when treatment was delayed for 30 minutes. The clinical application of this result was successfully demonstrated by Longcope and Luetscher,[7] who treated 23 cases of acute poisoning with corrosive sublimate. Nine patients took from 1.5 to 20 grammes of mercuric chloride, 5 of the 9 having swallowed more than 1.5 grammes. Eight patients were treated with BAL from one and a quarter to three and a half hours after taking the mercury and recovered completely in two and a half to seven days. One patient was first treated 19 hours after having swallowed at least 1.5 grammes, and was entirely well in 3 weeks. In treatment BAL was given by intramuscular injection, the first dose being 0.3 gramme, or 3 ml. of a 10% solution. The total given in the first 12 hours was 0.45–0.75 g., and, in the whole course of three to four days, 0.9–2.87 g.

Few people swallow corrosive sublimate, but occasionally fatalities occur after the injection of mercurial diuretics, as in the case recorded at page 530 of this issue of the *Journal*. These deaths are due to the toxic action of mercury on the heart, and Long and Farah[8] have

[1] *British Medical Journal*, 1946, **1**, 240.
[2] *J. clin. Invest.*, 1946, **25**, 497.
[3] *J. clin. Invest.*, 1946, **25**, 528.
[4] Ibid., 1946, **25**, 534.
[5] *Amer. J. Syph.*, 1946, **30**, 420.
[6] *J. clin. Invest.*, 1946, **25**, 549.
[7] Ibid., 1946, **25**, 557.
[8] *Science*, 1946, **104**, 220.

shown that in the heart–lung preparation of the dog this effect of mercury can be antagonized by BAL. Although the heart after the mersalyl injection is in ventricular fibrillation the injection of BAL arrests the fibrillation, restores a normal rhythm, and re-establishes the blood pressure.

What may prove another important application of BAL is in the treatment of gold poisoning. The use of soluble compounds containing gold for the treatment of rheumatoid arthritis is always attended by the risk of the prolonged and painful reactions which gold produces in some patients. Ragan and Boots[9] have treated 5 patients with gold dermatitis by giving injections of BAL, and in 4 of these, in whom the dermatitis had existed for less than 2 months, the pruritus ceased and the rash cleared. The result of relieving the dermatitis, however, was that the symptoms of rheumatoid arthritis increased. Lockie, Norcross, and George[10] successfully treated with BAL patients in whom gold injections had produced thrombopenic purpura and granulocytopenia. Their recovery was said to be spectacular. It may well be that with this new protection against toxic effects gold therapy will become a less risky matter. Various other metals—nickel, cadmium, chromium, and antimony—produce toxic effects which have been shown to be antagonized by BAL in animals. It is reasonably certain that the antagonism will be displayed in the human subject also, and that cases of poisoning by these metals which occur in industry will be more effectively treated than hitherto.

The background of BAL is worth some comment, since its introduction is an excellent example of the fact that academic research, carried out with the sole object of extending knowledge, is very often found to have an unexpected practical application. Peters had previously made a special study of the biochemical changes when a deficiency of vitamin B_1 occurs, and had shown that in the brain of the pigeon there is a failure to oxidize pyruvic acid, or pyruvate. He found that there was a similarity between the effects of chronic arsenical poisoning and deficiency of vitamin B_1, for in both there was polyneuritis, and therefore it seemed reasonable to examine the effect of arsenite on the pyruvate-oxidase system of the brain. Peters, Stocken, and Thompson[11] therefore began their experiments by adding arsenite to minced pigeon brain; they found it had little effect on the oxygen uptake until they added pyruvate. The arsenite was found to reduce the extra respiration due to pyruvate by half, and the conclusion was drawn that arsenic had an inhibiting action on certain specific enzymes, but was not a general poison. The subsequent investigation of the action of lewisite on the protein kerateine derived from human hair (collected from the barbers' shops in Oxford) led to the conclusion that efficient protection against arsenic required a dithiol compound able to form a stable ring with the arsenical agent. The steps towards the discovery, which were many, were in steady sequence; there is no sign in the record of a stroke of luck or of some accidental assistance enabling the discovery to be made by some short cut. It is indeed an advance when the biochemist using minced brain or skin slices can discover a remedy which achieves what one thought was impossible—not only to prevent a lewisite burn, but to remove all appearance of it after it has actually occurred.

[9] *J. Amer. med. Ass.*, 1947, **133**, 752.
[10] Ibid., 1947, **133**, 754.
[11] *Nature*, 1945, **156**, 616.

RENAL TUMOURS

Deming[1] has analysed a series of 82 cases of renal tumour admitted to the New Haven Hospital during the past twenty-three years. The important finding is that 19.5% were living at the end of five years, 14.6% at the end of ten years, and only 9.08% were free from disease after the ten-year period. There were 11 cases in the first decade of life, none in the second, and 60 in the fifth, sixth, and seventh decades. Classification of the tumours still presents considerable difficulty, and the clinical advantages of too fine a subdivision are not obvious. This series included 26 adenocarcinomata, 25 hypernephromata, 12 tumours of renal pelvic origin, 6 malignant nephromata, 3 sympathicoblastomata, 3 sarcomata, 2 embryonal carcinomata, and 5 benign tumours. Half the malignant nephromata (Wilm's tumours) and all the sympathicoblastomata appeared in childhood.

Accurate pre-operative diagnosis of the exact nature of cortical tumours is impossible, but where a renal tumour is suspected pyelography should be repeated at frequent intervals. Information as to the degree of fixation or mobility of the kidney may be obtained by clinical examination supplemented by radiological studies in the vertical and horizontal positions. Of these 82 patients 69 were subjected to nephrectomy, 4 had biopsy of the tumour with ligation of the ureter, and 2 had biopsy only. The other 7 patients were admitted shortly before death and necropsies were performed. Nephrectomy remains the operation of choice, with excision of the ureter in the case of pelvic growths. Extension of the growth into the renal vessels or even into the vena cava increases the technical difficulties but does not necessarily preclude nephrectomy. Irradiation has as yet little to offer in the treatment of renal tumours; radio-sensitivity is not yet predictable either clinically or pathologically. Ladd, of Boston, has given up irradiation in children, claiming that it is of little or no value. On the other hand, irradiation does reduce the size of the tumour in some cases and may make surgical removal easier. It may also cause the temporary disappearance of pulmonary metastases, especially those from hypernephromata and embryonic tumours, but the growths soon recur.

The most striking feature about the secondary deposits is their late appearance. Two patients in this series died of metastases more than ten and eleven years, respectively, after nephrectomy for hypernephroma. Those patients with sympathicoblastomata or embryonic carcinomata all died within the three-year period. Although in 36 cases there was no delay in making a diagnosis, and in one half of these the tumour was discovered during routine clinical examination, there was little difference in the ultimate fate of those cases subjected to early operation and those in which for some reason or other nephrectomy had been delayed. The outstanding feature of this survey is its demonstration of the fallacy of the five-year period in the control of renal tumours. The long delay in the appearance of metastases suggests that there may be body-defence mechanisms which play some part in controlling the course of these tumours—mechanisms about which we know nothing at present but which may prove important in explaining the slow growth of some malignant tumours.

[1] *J. Urol.*, 1946, **55**, 571.

PENICILLIN AND DIPHTHERIA CARRIERS

The number of procedures advised for treating the diphtheria carrier state testifies to their limited value. Each is in fashion for a time, but few survive prolonged trial. When evaluating the divergent results obtained three factors must be borne in mind. In the first place it is probably true to say that we too often think of the carrier state as a mere surface infection, whereas of course the organisms often lie deeply in tonsillar and other tissue. Further, a common prerequisite of the carrier state is a diseased condition of the upper respiratory tract, which is unlikely to be affected by antiseptic applications. Finally, the undoubted importance of reinfection in prolonging the carrier state is now widely recognized. Macdonald,[1] for example, has recently drawn attention to the frequency with which skin and finger-nail infections are associated with anterior nasal diphtheria—a condition which might almost be classed with the carrier states.

Penicillin is the obvious modern remedy, for it has been noted by many workers—for example, by Young and Wood[2] and by Long[3]—that most strains of *C. diphtheriae* are sensitive to this antibiotic. The reports of the results of treatment, however, have not all been in agreement. Berman and Spitz[4] used a watery solution containing 500 units per ml., and, after instilling 1 ml. into the nose by means of a dropper, they administered 1 ml. atomized into the fauces and pharynx. This treatment was given four times daily for five days. Ten carriers so treated became clear after the first day and remained so; twelve controls, who were treated initially with hot saline gargles, remained positive until penicillin was used, when five promptly became negative. Paull and his colleagues[5] also used penicillin locally in nebulized form (2,000 units per ml. in 10% glycerin-saline). They gave four treatments daily, but concluded that no reduction in the duration of the carrier state was effected. Bagnall and Bain[6] used penicillin parenterally. Twenty-two of their cases received 0.6 mega-units and another 25 received 1.2 mega-units, both groups over a period of one week. The treatment was not always effective, but they found an association between failure and the condition of the tonsils, described as "bad" in 13 out of 14 failures in the first group and 6 out of 7 in the second. More recently Kocher and Siemsen[7] have compared the effect of local and systemic treatment. Systemic penicillin completely failed to cure nine carriers. Local treatment with a gum lozenge, which took half an hour to melt and contained 500 or 1,000 units of penicillin, was more successful. One lozenge was sucked hourly for 12 waking hours over a period of 3–15 days. Of 31 carriers so treated 23 cleared rapidly, and cultures remained negative up to ten days after treatment was stopped. Seven of the remainder cleared after tonsillectomy, the eighth after both tonsillectomy and a further course of local penicillin.

What lessons can we learn from these conflicting results? Perhaps the first is to draw attention again to the unpredictability of the course of the carrier condition. The failure of systemic penicillin is disappointing, for one had hoped that this would sterilize the tonsil from within. Perhaps the difficulty here, as in the treatment of subacute bacterial endocarditis, is to ensure that the penicillin actually penetrates the barrier surrounding the organism. In considering the problem of local therapy we would draw attention to three points. First, the dangers of local oral penicillin must be remembered, for stomatitis is a possible risk. Secondly, such treatment may merely mask the condition temporarily (Bagnall and Bain[6] cultured *C. diphtheriae* from the centre of a removed tonsil from whose surface before tonsillectomy eight consecutive negative cultures had been obtained). Finally, and perhaps most important, when the tonsils are obviously unhealthy surgical measures should be advised if penicillin does not rapidly clear them.

1 *Mon. Bull. Min. Hlth.*, 1946, **5**, 25.
2 *J. Bact.*, 1945, **50**, 205.
3 *British Medical Journal*, 1946, **1**, 773.
4 *Bull. U.S. Army med. Dept.*, 1945, **4**, 87.
5 *Ann. Intern. Med.*, 1946, **28**, 413.
6 *Proc. Conf. Army Phys.* (*C.M.F.*), Rome, 1945, 107.
7 *Ann. Intern. Med.*, 1946, **28**, 883.

VAGAL RESECTION FOR PEPTIC ULCER

In his Moynihan lecture, reported elsewhere in this issue (p. 540), Dr. Arthur W. Allen compared the results of subtotal gastrectomy with those following vagal resection. Resection of the vagi for the relief of the symptoms of peptic ulceration has been practised in America for several years. Dragstedt,[1] who re-introduced this operation, has recently reported a four-year follow-up on some of his cases. In this country vagal resection has not been widely adopted so far. Our patients are not yet so enlightened as is apparently the case in the States, where sufferers are said to approach the surgeon armed with a copy of *Time* describing vagotomy in lyrical terms.[2]

Physiologically there is sound support for this operation. Gastric secretion has a twin control: there is a hormonal phase evoked by food in the stomach, and a psychic phase centrally controlled through the vagus nerves. This latter mechanism is largely responsible for the hypersecretion which occurs in duodenal ulceration, and vagal section should therefore abolish it, with consequent benefit to the patient. Anatomically there are peculiarities about the vagus nerves which make it doubtful if it is ever possible to cut them completely. High in the thorax they give off filaments which penetrate the wall of the oesophagus and run down in it to the stomach. These fibres will clearly be untouched by any operation at the hiatus of the diaphragm whether approached through the thorax or the abdomen. Their number is not great, and it may be that their effect is negligible; but we would do well not to forget them entirely.

The immediate results of the operation are striking. Smith, Ruffin, and Baylin,[3] reporting 50 vagotomies with one death, claim that in 43 instances there was a complete recovery, the patients being able to eat an unrestricted diet and return to full work. Similar successes have been recorded by other workers. The side-effects of the operation are considerable and may require further surgery. Dilatation of the stomach occurs in all cases; it is least in those cases in which there has been a previous short-circuiting operation, but without this it may be extreme. Thus Smith and his colleagues had one patient in whom there was complete retention of barium in the stomach for forty-eight hours. The motility of the stomach is profoundly altered; peristalsis is not entirely abolished, but the waves are slower, more shallow, and less rhythmical. They may fail to constrict the barium in the stomach at all, but, according to Machella and others,[4] they can be restored by the injection of urethane of B-methylcholine chloride. Diarrhoea often appears when the patients start to eat a normal diet; there may be as many as ten watery motions a day accompanied by lower abdominal discomfort. The degree of hypochlorhydria which follows the

1 *Canad. med. Ass. J.*, 1947, **56**, 133.
2 Howard, J. T., *South. med. J.*, 1947, **40**, 10.
3 Ibid., 1947, **40**, 1.
4 *Gastroenterology*, 1947, **8**, 36.

operation depends upon the completeness with which the accessible fibres of the vagus are severed. It can be estimated by some form of insulin test, and it would be an advantage if the precise procedures for the performance of this test laid down by Hollander[5] were adopted as a standard in the evaluation of these cases.

All those who have experience of the operation agreed with Dr. Allen that there are definite criteria which must be observed in choosing suitable patients. Thus Orr and Johnson,[6] who recently reported a series of 50 cases from the British Postgraduate Medical School, recommend that it should be restricted to duodenal or stomal ulcers, preferably in young subjects with a long history of relapses. They point out that the reduced gastric motility after operation may cause an unsuspected stenosis to come to light. If a pre-operative radiograph shows much scarring of the duodenum, then vagotomy will have to be combined with some form of short-circuit. Many years must elapse before any new treatment of peptic ulcer can be accurately evaluated. Of vagotomy now, it may be said that so long as suitable cases are carefully chosen it is likely to be a useful measure. But surgeons should bear in mind Sir David Wilkie's observation that any new operation is likely to give excellent results in its early days when patients are chosen with the utmost care. Later, when the operation is widely adopted and selection is less strict, results are often disappointing, and a useful procedure may fall into disrepute. It is to be hoped that this will not happen with vagotomy.

THE R.C.S. AND THE SURGICAL CONGRESS

The International Surgical Congress concluded its proceedings in Edinburgh, an account of which we print elsewhere in this issue. The success of the Congress as a whole owes much to the President of the Royal College of Surgeons of England, Sir Alfred Webb-Johnson, who not only brought a message of welcome from His Majesty but through whose good offices permission was obtained to hold the inaugural ceremony in the picturesque Hall of Lincoln's Inn, thanks to the kindness of the Treasurer and Masters of the Bench.

Some of the famous visiting surgeons took home with them the Honorary Fellowship of the College; the recipients came from Belgium, France, and the U.S.A. The Lister medal was presented to Evarts Graham, of St. Louis, who has done so much to advance surgery in so many fields, and the honorary medal of the College to Edward Gallie, of Toronto. These awards were not presented in the privacy of the Council Chamber but *coram publico*, with all the ceremonial that befitted the occasion.

Thanks to Sir Alfred, the feast of surgical instruction for the postgraduate from London and elsewhere was prolonged for another ten days. The brilliance of the Congress week was followed by a series of lectures by masters of their craft, and the seating accommodation of the bombed College of Surgeons was strained far beyond capacity: on the Friday twelve hundred surgeons tried to gain admittance to hear Alfred Blalock, who saved the situation by giving a "repeat performance." The other lecturers were received with equal enthusiasm: Arthur Allen, Frank Lahey, Edward Gallie, Evarts Graham, Hassan Ibrahim, and Harold Wookey.

The Royal College of Surgeons, under the inspiration of its President, is fast becoming for surgical postgraduate teaching and research a European centre of the first magnitude, and we look forward to seeing the events of the past fortnight recorded in the College's new journal.

[5] Ibid., 1946, **7**, 607.
[6] *Lancet*, 1947, **2**, 84.

LAST YEAR'S HEALTH

The Social Survey in an investigation recently reported[1] found that the improvement noted in 1945 in the incidence of sickness was not maintained during 1946. The average monthly rate for minor sickness in both males and females was considerably above the rate for 1945 and slightly in excess of the 1944 rate. The incidence of more serious illness among males aged 16–64 in 1946 was of the same order as that for 1945; the rate for females showed a slight rise over the 1945 value. The rates for both sexes, however, were below the 1944 figures. The average number of serious illnesses among men aged 65 and over was slightly in excess of the number recorded in 1945; older women had an excess of 71%. The morbidity rate during 1946 for all forms of sickness at ages 16–64 declined from 7.5 per 100 persons in January to about 3.3 in the summer, and increased again to 6.0 in December. For females a larger average number of minor sicknesses was recorded than for males, but there was little difference between the sexes in the incidence of serious illness.

Attacks of influenza or colds were most common and were approximately twice as numerous in the age group 16–64 as in the over 65 group. A consistent excess of sickness from colds, influenza, and respiratory diseases occurred in the last three quarters of 1946 as compared with 1944 and 1945. Attacks of rheumatism also increased during 1946 among both sexes at all ages. Females aged 16–64 had a slightly larger average number of attacks of rheumatism than the males, but the latter were more incapacitated (7 days per 100 men, compared with 4 days per 100 women). In older people the average number of days of incapacity was more than double the number at ages 16–64.

There was no significant change during 1946 in the reported incidence of conditions thought to be of nervous origin. For the "psychoneurosis" group the monthly rates varied from 13.2 to 17.0 at ages 16–64; the rates for the older people followed a similar trend. The rate for functional digestive disorders varied from 7.7 to 10.3 for persons aged 16–64; older persons had a higher incidence. About one out of every three persons interviewed mentioned one of the "nervous" conditions as a cause of sickness.

The findings of the Social Survey confirm the experience of general practitioners that during last year minor ailments were on the increase. It will be of interest to learn what 1947 has to show. After the stresses and strains of a long war an increase in illness is hardly surprising, and it is unprofitable to attribute such increase to shortage of foodstuffs and other commodities. In comparison with any other country we can justifiably claim that what we have we share equally. But the sense of war-strain persists, and so long as it persists its effects will continue to be felt.

The Harveian Oration entitled "Our Founders and Benefactors" will be delivered by Dr. C. E. Lakin before the Royal College of Physicians of London (Pall Mall East, S.W.) on St. Luke's Day (Saturday, Oct. 18), at 3 p.m.

[1] *Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service*, 1947, **6**, 123.

DUODENAL ULCER

DR. A. W. ALLEN'S MOYNIHAN LECTURE

At the Royal College of Surgeons on Sept. 22, as was briefly reported last week (p. 505), Dr. Arthur W. Allen, of Harvard, President of the American College of Surgeons, delivered the Moynihan Lecture, taking as his subject "Duodenal Ulcer."

Dr. Allen began by saying he had not chosen duodenal ulcer as a subject because of the pioneer work done by Moynihan, in whose memory the lecture was founded, for Moynihan, though he carried out important work in this field, had many other interests. He had chosen it because the subject was still in a fluid state. Ideas were constantly changing. No sooner did there seem to be an answer, or a probable answer, to some problem than doubt arose owing to the appearance of apparently contradictory results. Perhaps 10% of patients failed to get along under conservative treatment and came into the hands of surgeons who, after years of trial and error, thought that they had hit upon the solution in subtotal gastric resection. Although it was obvious that this operation was giving a high proportion of good results—a higher proportion than any other method heretofore advanced—he himself began to have misgivings a few years ago. Some patients were not improved after the procedure, and there were a few who seemed to have been made worse. In an analysis of the gastrectomies he had carried out for uncomplicated duodenal ulcer it was obvious that a certain number of the patients had side effects which were perhaps worse than their original malady. Physiologists were continually looking for an explanation of this wayward situation arising in one patient when the previous nine and the following nine had no trouble whatever, and they had turned to the question of hyper-secretion and hyper-acidity, without which ulcer of the duodenum did not occur.

[Topical Press

Sir Alfred Webb-Johnson, P.R.C.S., Dr. Dallas B. Phemister, Dr. Frank H. Lahey, Dr. Irvin Abell, Dr. Evarts A. Graham, and Dr. W. E. Gallie. Dr. Arthur W. Allen, P.A.C.S., is at the lectern, which with the oak table was presented as a gift from the American College of Surgeons to the Royal College of Surgeons of England.

In Dr. Phemister's clinic in Chicago, Dragstedt had brought forward the possibility of treatment of duodenal ulcer by interruption of the vagus nerve. He (Dr. Allen) had a group of his own patients who had been treated by subtotal gastrectomy and had been the subject of a follow-up extending over ten years. In his hospital there was also a group of patients who had been treated by vagus resection with a follow-up extending, however, over a much shorter period (about four years). It was his intention to show comparatively the results obtained in these two groups.

Subtotal Gastrectomy

In the first place Dr. Allen with the aid of diagrams described the operation of subtotal gastrectomy for duodenal ulcer, with certain modifications to meet particular types of cases. The first procedure, which had been followed in the great majority of his own cases, was primary resection with removal of the ulcer-bearing portion of the duodenum. The second was one which he had found useful on occasion for any deep-lying ulcer with adhesions; it was followed in cases in which there was a sufficient amount of free duodenum above the ulcer so that the resection could be done, the ulcer excluded, and nothing left which might produce a recurrence. A third possibility related to patients with very extensive ulceration or adhesions, who might perhaps have had a perforation previously, and on whom it was necessary to operate for mechanical reasons. Here a procedure was resorted to whereby the antrum was cut, the mucosa of the antral segment carefully removed, and the segment turned in. The fourth type of procedure was adopted in certain difficult cases when a two-stage operation seemed to be justifiable. Gastrectomy for exclusion was done, but no attempt was made at the time to remove the antral mucosa. Six weeks later, however, another operation was done on the patient for this purpose. The idea was that this made the operation a safe one for the general surgeon who was not carrying out gastric surgery regularly, and that the safeguard of a two-stage operation would mean a lower mortality and fewer complications. This operation had been undertaken quite extensively at the Massachusetts General Hospital, but he had seldom found it necessary in his own practice.

An analysis of his 196 consecutive operations on patients with uncomplicated duodenal ulcer, carried out according to the four procedures set out above, is given in the table below.

The mortality was mostly due to difficulty with the duodenal stump, because resection had to be done so low that there was no room to get an adequate turn-up. He had excluded from this list, in order to get a true comparison with vagus resection, those cases which had previously been the subject of unsuccessful surgery and those in the acute stage of massive haemorrhage. On the matter of age, even elderly patients who were bleeding from a duodenal ulcer, if operated on immediately they got over the shock, would show a very low mortality. Actually in twelve patients who were over 65 there was only one death. But, of course, it was a question how much should be ascribed to the particular procedure followed and how much to the generally heightened level of surgery. Surgery in every field was far safer than it was ten years ago. Mortality rates were coming down, and death after operation in the modern hospital was now a rarity.

	(1)	(2)	(3)	(4)	Total
Cases	138	20	35	3	196
Deaths	3	1	0	0	4

Vagus Resection

Dr. Allen proceeded to show further diagrams illustrating how the section of the vagus should and should not be done. A possible error was inadequate removal of the nerve. The procedure which should be followed was the removal of a long segment, not less than 5 cm., preferably 10 cm., of the vagus nerve, and the encapsulation of the upper end in an impermeable cylinder in the hope that this might delay regeneration. All the cases at his own hospital had been operated on in

that way. They did not complicate their cases with gastro-enterostomies. They had not carried out this operation for gastric ulcer for the very obvious reason that they were not able to determine whether the ulcer was benign; 14% of the cases diagnosed as benign ulcer of the stomach proved to be cancerous. Therefore vagus resection had no place in the surgery of gastric ulcer.

The statistics from his hospital for vagus resections carried out from 1944 to 1947 were as follows:

	Number of Cases	Deaths
Duodenal ulcer	75	0
Jejunal ulcer	22	0
Miscellaneous	6	1

The 75 cases were of uncomplicated duodenal ulcer. The patients had undergone various forms of medical treatment. Most of them had been through the hands of the psychiatrist. Finally, when it became obvious that nothing could be done by those means, they were chosen for this surgical procedure because they had no obstruction at the outlet of the stomach or in the duodenum, and most of them were young. Twenty-two cases were operated on for anastomotic ulcer. These were the type of cases in which the procedure he had indicated had its most spectacular effect. This group of anastomotic ulcers could be relieved certainly temporarily by this method, and it was startling to see them wakened from anaesthesia free from pain for the first time for months. He added that the nerves should be injected with novocain before they were severed or manipulated, and the patients should receive large doses of atropine. He showed a radiograph illustrating the appearance twelve days after resection in a case in which there had been a good-sized jejunal ulcer, and many such results could be shown. There had been almost no trouble from empyema and complications of that kind. He also showed a curve illustrating the effect which the vogue of vagus resection had had upon the number of private patients coming to him and being treated by subtotal gastrectomy. The curve showed a certain fall during the years in which vagus resection had come into favour, but he added that they were not quite so enthusiastic now about vagus resection as they were at the beginning.

The Methods Compared

Dr. Allen next showed the result of a follow-up extending back for ten years in the cases of subtotal gastrectomy and four years in the cases of vagus resection.

	Subtotal Gastrectomy	Vagus Resection
Number of cases	196	75
Average age	47.4	42.1
Males	84%	84%
Recurrent ulcer	34%	14%
Good result	85%	87%
Fair result	7%	6%
Poor result	8%	7%
Operative mortality	2%	Nil

These were all cases of primary duodenal ulcer. In his own group of subtotal gastrectomies he was ready to claim that 85% showed satisfactory results. Many of the patients had to be questioned very closely to get much in the way of symptoms out of them. The results described as "fair" were those in which the patient was not quite well, was subject to restrictions in diet, and, if not actually showing loss of weight, had to be the subject of considerable attention in order to maintain weight.

The drawbacks attaching to subtotal gastrectomy for duodenal ulcer were a certain though very small operative mortality, a number of cases of anastomotic ulcer, a few cases of gastritis with bleeding, the exhibition occasionally of the "dumping syndrome" (in which there were distress, sweating, and sometimes nausea after eating—but most patients got over it), a certain amount of weight loss which was a problem with some of the older patients, and a gastro-intestinal reflex indicated by loose stools and the like.

Vagus resection had also the drawback of occasional recurrent ulcers. It was hard to say after what period recurrences were no longer to be expected. In his hospital, for example, one-third of the anastomotic ulcers which followed operation occurred within the first year, another third within the second year, but the remaining third were spread over a period of many years. Therefore it was difficult to use the term "end result," and perhaps it should never be used in a situation of this kind. Two of the patients who had undergone vagus resection had persistent ulcer pain after the operation as well as before it; some had pain and bleeding; others had a feeling of distension; eructations were almost the rule, though this was usually transient, and diarrhoea and slight obstruction were not infrequent.

Conclusions

This entire problem should be viewed with an open mind. Vagus resection was a useful procedure and might have a permanent place in the treatment of duodenal ulcer. But unless the results were critically analysed, not only of vagus resection but of subtotal gastrectomy, their colleagues who had not the opportunity of following up a group of cases over a sufficient period would be misled. Either an adequate subtotal gastrectomy or vagus resection would give a high incidence of immediate relief in intractable duodenal ulcer. Vagus resection was the procedure of choice in anastomotic ulcer following upon subtotal gastrectomy. It was also to be recommended in intractable duodenal ulcer in younger patients. Vagus resection had no place in the treatment of gastric ulcer on account of the difficulty of distinguishing benign from malignant ulceration of the stomach, and because of the excellent results and low mortality obtained by gastric resection in gastric ulcer. In vagus resection the transthoracic approach was the most adaptable for an interruption of the efferent pathway. Obviously many years of experience and careful selection of patients and adequate follow-up would be necessary properly to evaluate vagus resection. Subtotal gastrectomy was, in his opinion, to be preferred for all patients who had superficial obstruction from duodenal ulcer, for those with acute massive bleeding when any operation was indicated, and for those with intractable ulcer in the later age groups.

(See also an annotation on this subject at p. 538.)

INTERNATIONAL SOCIETY OF SURGERY

VISIT TO EDINBURGH

Following the Twelfth Congress of the International Society of Surgery in London, about 160 members of the Society visited Edinburgh from Sept. 23 to 26. A comprehensive and detailed programme arranged by the Department of Surgery of the University of Edinburgh included a wide choice of operating sessions at many of the voluntary and municipal hospitals in the city, and special demonstrations at the University departments of surgery and anatomy. The library and museum of the Royal College of Surgeons of Edinburgh were also open to members of the Society throughout their visit. On Tuesday morning Prof. J. R. Learmonth extended a cordial welcome to the visitors. Later a number of members were present as guests of His Majesty's Government at lunch in the Caledonian Hotel, under the chairmanship of the Rt. Hon. Joseph Westwood, M.P., Secretary of State for Scotland. In the afternoon the scientific sessions began.

Treatment of Thyrotoxicosis

Prof. D. M. Dunlop presented a study of 76 consecutive cases of thyrotoxicosis treated with thiouracil over periods varying from one to three and a half years. The initial dosage was 0.6 g. daily, for three to four weeks, followed by maintenance doses of 0.05 to 0.2 g. daily. Overdosage caused myxoedema and increase in the size of the goitre. The results in 66 of the cases were comparable to those following successful thyroidectomy. Drug resistance was encountered in 4 cases and required thyroidectomy, which was also performed with good results in 5 out of 6 cases showing toxic reactions to the drug. Of 43 patients in whom treatment was stopped after about a year, 13 had remained free of symptoms for one to three years. The other 30 had relapsed at varying periods after stopping the

drug, but further treatment had again controlled them. Thiouracil was the treatment of choice in young people with primary thyrotoxicosis, excluding those with sternal goitre, pressure symptoms, or possible malignancy.

Mr. K. Paterson Brown said that since the introduction of thiouracil the number of thyroidectomies performed in Edinburgh had been markedly reduced. In pre-operative preparation the ideal was thiouracil for a month followed by iodine for ten days. Among the indications for operation in primary toxic goitre were non-control of symptoms by thiouracil, increasing size of the thyroid and pressure symptoms, the desire of the patient for operation, and complications produced by thiouracil treatment. In secondary toxic goitre operative treatment was considered preferable, as pressure symptoms were often present, there was lessened danger of later cardiac breakdown, and there was the possibility of malignant change developing. Complications of surgical treatment were uncommon, but the danger of post-operative haemorrhage was stressed.

Treatment of Haemorrhagic Diseases

In a symposium on this subject the medical aspects were presented by Prof. L. S. P. Davidson and his associates, and the surgical aspects by Prof. J. R. Learmonth.

Thrombocytopenic Purpura.—The essential features of the idiopathic type consisted of a bleeding tendency, associated with a low platelet count, a prolonged bleeding-time, increased capillary fragility, and an increase of megakaryocytes in the bone marrow. The indications for splenectomy were: chronic cases in which the bleeding tendency interfered with social or economic efficiency because of anaemia, or endangered life; acute cases in which conservative treatment failed to control bleeding; and cases with evidence of intracranial haemorrhage. The operation should not be performed on a child until medical treatment had been given a thorough trial, or when the condition was not idiopathic, or when there was evidence of spontaneous remission. In 10 cases submitted to splenectomy the clinical results were good, even where a prolonged bleeding time, a low platelet count, or increased capillary fragility recurred.

Haemolytic Anaemia.—The essential features were a persistent or recurrent anaemia with increased or normal red cell fragility, increased reticulocyte count, normal colour index, normoblastic bone marrow, and, frequently, microspherocytosis. The spleen was moderately enlarged, and haemolytic crises might occur. Indications for operation were the occurrence of symptoms in childhood, the formation of biliary stones, the recurrence of a crisis, or failure of a crisis to respond to blood transfusion. Of 7 patients who underwent splenectomy 6 now showed no evidence of anaemia.

Banti's Syndrome.—This might be due to intrahepatic (cirrhosis) or to extrahepatic (obstruction in the portal or splenic veins) causes. Cases might be subdivided into those suitable for medical treatment (mild cases without oesophageal varices); those suitable for splenectomy, where the block was in the splenic vein; those suitable for lieno-renal or porto-caval anastomosis, where the block was in the portal vein or in a liver only moderately damaged; and those not suitable for operation—cases of advanced cirrhosis with impending death from hepatic failure. Insufficient time had elapsed to assess the results in the 7 cases which survived operation.

Doubtful Cases.—There was a group of cases refractory to liver and iron therapy which might simulate haemolytic anaemia in that the colour index was about unity, the marrow hyperplastic and normoblastic, and the reticulocytes slightly increased. Cases of hypersplenism had been described in which the spleen was believed to prevent the final maturation or expulsion of red cells from the marrow. For this reason splenectomy was justifiable in this group when all other measures had failed.

Carcinoma of the Breast

Dr. R. McWhirter presented a paper based on the study of 2,500 cases of carcinoma of the breast carefully followed up (with only 6 untraced). In a series of 364 cases of operable breast cancer treated by radical surgery alone, 39% developed recurrences in the operation area within five years. Radiotherapy after radical operation reduced this figure to 14% but only succeeded in raising the five-year survival rate from 35.6% to 44%. In 1941 it was decided that the operation should be restricted to simple excision of the breast and that the axilla should not be dissected. By so doing it was hoped that cells would not be disseminated outside the area which could be treated by radiotherapy. In the period 1941–5 this method was used in 942 operable cases and the five-year survival rate had been raised to 56%. In "inoperable" cases treatment by radical surgery and radiotherapy gave a five-year survival rate of 2.5%, which by simple mastectomy and radiotherapy had been increased to 14.1%. When cases with clear clinical or radiological evidence of distant metastases were excluded, the five-year survival rate in the "inoperable" group treated by simple mastectomy and radiotherapy was 24.6%, and perhaps this figure brought out more clearly the value of the method now in use. In 1,146 cases of breast cancer without clinical or radiological evidence of distant metastases treated in the period 1941–5 the first-year survival rate was 50.1%. In the operation of simple mastectomy performed before radiotherapy no iodine should be applied to the skin and no adhesive plaster used, as both lowered the skin tolerance. The scar should be as short as possible, and not extended into the epigastrium. To avoid tension too much skin should not be excised even if this meant leaving diseased skin for later irradiation. The axilla should not be dissected. (In very stout patients radical operation might be necessary owing to the technical difficulty of *x*-ray treatment.) The supraclavicular glands should never be removed as they were very accessible to irradiation. In the subsequent radiotherapy only one full course should be given, about two weeks after operation. The axillary and supraclavicular glands were treated as one chain, and the chest wall was treated in large tangential fields. Routine irradiation of the ovaries in all patients over 35 years was advocated.

Curare in Anaesthesia

Dr. John Gillies, in an assessment of the value of *d*-tubocurarine chloride as an adjuvant in anaesthesia, gave a brief historical survey from the description by Sir Walter Raleigh in 1595 of the use of curare as an arrow poison by the Orinoco Indians to the isolation of the pure alkaloid by Harold King in 1935. The mode of action was by preventing acetylcholine from acting on the nerve-muscle junction in the motor end-plate, thus producing paresis of striped muscle. The drug was partially destroyed by the liver and excreted by the kidneys. He compared 100 consecutive personal cases in which *d*-tubocurarine was used with the same number in which it had not been employed. The advantages of the drug were in the quality of relaxation, particularly in difficult upper abdominal surgery, and the reduction of toxic effects due to the saturation of tissue cells by the general anaesthetic, particularly in ill patients. The dangers were "paralytic" apnoea, inadequate CO_2 clearance, and anoxia; secondary circulatory effects; bronchospasm and atelectasis; and passive reflux of gastro-intestinal contents and their aspiration. The incidence of serious post-operative respiratory complications was decreased by the use of curare.

Peptic Ulceration

Prof. C. F. W. Illingworth, discussing the prospects of treatment in peptic ulcer, stated that subtotal gastrectomy was not uniformly effective. The mortality was still too high, and careful follow-up studies showed poor results in a proportion of cases. The great and increasing frequency of peptic ulcer (there were nearly a million cases in Great Britain), emphasized the need for a wider approach to the problem, including the medical, surgical, social, and psychological aspects. Essentially the three main principles underlying treatment were: to control the acidity of the gastric juice, to protect the mucous membrane from its activity, and to put the ulcerated part at rest. Vagotomy might be expected to reduce the hypersecretion and diminish gastric motility; but experience with the subdiaphragmatic operation had been disappointing, and it remained to be seen if the supra-diaphragmatic method would prove more successful. There seemed to be scope for exploration of the effects of drugs which paralysed the parasympathetic endings and for the use of anti-histamine substances. The importance of after-care was stressed.

Mr. W. Quarry Wood, describing the treatment of peptic ulcer by ligation of the gastric blood vessels, reviewed a personal series of 42 cases treated by T. Howard Somervell's method of ligature of four-fifths or five-sixths of the gastric blood vessels with the addition of gastro-enterostomy. First impressions were reasonably satisfactory, with in most cases a return to full work and considerable gain in weight. But three cases developing stomal ulceration and coming to subsequent operation showed the development of fresh vessels on the lesser curvature. It was also found that there was no permanent reduction of acidity. No criticism of Wilson Hey's method was implied, as this was fundamentally different in principle.

Mr. A. G. Ross Lowdon discussed the surgical treatment of 15 cases of gastro-jejuno-colic fistula—which might develop at any time up to twenty years or more after gastro-jejunostomy. The symptoms were characteristic, with severe diarrhoea (due to jejunitis caused by the contents of the colon entering the small intestine), eructations of foul gas, vomiting of faecal matter, and wasting. Treatment was by a two-stage operation, preferably a proximal transverse colostomy followed by partial gastrectomy with reconstitution of the jejunum and transverse colon.

Other Contributions

Mr. David Band discussed the restoration of vesical continence and the rehabilitation of patients suffering from spinal cord injuries. Treatment by resection of the hypertrophic muscle at the bladder neck to provide a wide channel from the bladder to the prostatic urethra, and by tidal lavage against an increasing pressure to increase bladder capacity to approximately normal, had resulted in a restoration of normal evacuation of the bladder, with complete continence between acts of micturition.

Mr. D. M. Douglas, describing two experiments in the study of the rhythmic activity of the small intestine in the dog, deduced evidence to suggest that there was a pace-making mechanism in the upper part of the small intestine.

Mr. A. J. Slessor, in a review of 22 cases of causalgia, defined as a "spontaneous severe pain of 'burning' character situated approximately in the sensory territory of a nerve which has been injured," described the immediate results of sympathectomy as satisfactory, and stated that the beneficial effect of sympathectomy lasted over a period of at least three years.

Prof. W. C. Wilson described the study of 30 cases of severe peritonitis, of which 12 were fatal, by serial estimations of plasma and blood volume, total circulating protein, albumin, and haemoglobin. The usual changes were a reduction of plasma volume to a level as low as 60% of normal, a parallel reduction of total circulating protein, and a disproportionately great reduction of total circulating albumin. These changes were mainly due to the exudation of whole plasma into the peritoneal cavity.

Mr. T. McW. Millar, referring to tumours of the recto-sigmoid region which were too low for resection and end-to-end intraperitoneal anastomosis, or for the Paul–Mikulicz operation, presented the argument for adoption in selected cases of anterior resection with immediate end-to-end anastomosis, with or without preliminary colostomy, and discussed the problems involved. The standard method of treatment by the abdomino-perineal operation of Miles left the patient with a permanent colostomy. He asked, Was the sacrifice of the lower rectum and anus necessary?

Mr. A. W. Wilkinson presented a study of protein metabolism after gastrectomy and after operations on bones. Protein hydrolysates were given by the oral and intravenous routes. Oral hydrolysates had proved of limited value before operation, and after operation they were undesirable. Post-operative intravenous hydrolysates were given without adverse reaction, but it was found impossible to abolish the katabolic phase.

Prof. J. R. Learmonth in a succinct paper summarized the pathology and the possibilities of surgical treatment in the relief of portal hypertension.

Close of Meetings

When the final paper had been presented the visiting surgeons and their ladies assembled in the surgery lecture theatre to hear messages of good will and farewell from Edinburgh's senior professional and civic representatives. Sir John Fraser, Principal of Edinburgh University, said that the value of such a congress could not be overestimated. Scotland had its own individuality and culture, with particular pride in its medical institutions and historic figures, and he felt that what had been presented by Prof. Learmonth and his colleagues suggested that the days to come would be no less distinguished than those which had gone before.

Sir George Anderson, Secretary to the Department of Health for Scotland, said that they had watched the congress with great interest, and had been proud to see its success and to hear the many tributes to the way it had been organized. Mr. J. M. Graham, President of the Royal College of Surgeons of Edinburgh, in saying farewell, said how much they had appreciated meeting and exchanging views with surgeons from other parts of the world, and asked that the younger surgeons should be encouraged to exchange visits, as it was on the younger men that the future of surgery depended.

Sir John Falconer, Lord Provost of Edinburgh, hoped that the visitors had sensed a real welcome in Edinburgh. Dr. L. Dejardin (Brussels), Secretary General of the International Society of Surgery, thanked the speakers on behalf of the visiting members of the Society for their good wishes, and expressed appreciation for all that had been done to entertain and instruct them, saying that the meeting would remain in their memories as a model of perfect organization.

Receptions

In addition to the scientific programme very full arrangements were made for the entertainment of the guests, both at public functions and by private hospitality, with whole-day tours of the Trossachs and the Scott country. On Tuesday evening a reception was held in the Surgeons' Hall by the President and Council of the Royal College of Surgeons of Edinburgh, at which the Diploma of Honorary Fellowship of the College was conferred on Prof. Jean Verhoogen, of Brussels, President of the International Committee of the Society of Surgery. In presenting him for the honour, Prof. R. W. Johnstone, vice-president of the College, referred to Prof. Verhoogen as the beloved doyen of surgery in Belgium, who throughout a long life spent in the practice of surgery had devoted himself to the highest service of his profession.

On Wednesday afternoon the visitors were received by Lord Provost Sir John Falconer and the Magistrates and Councillors of the City of Edinburgh at the City Chambers, where they were entertained to tea, followed by a spirited display of Highland dancing and piping by the Edinburgh Police pipe band.

In the fine spacious library of the University Old College, members of the Society were welcomed on Thursday evening by Prof. Sydney Smith, Dean of the Faculty of Medicine. Sir John Fraser, Principal of the University, who was unable to attend owing to illness, sent a message of welcome, to which Prof. Sydney Smith added his good wishes and a plea for the free exchange of scientific knowledge. In reply Prof. Verhoogen expressed the appreciation of the Society for the invitation to visit Edinburgh, and for all that had been done for their enjoyment.

ROYAL SHEFFIELD INFIRMARY

150th ANNIVERSARY

The Sheffield General Infirmary was opened on Oct. 4, 1797. The occasion was marked by a truly "Grand Procession," headed by "Two Trumpeters, on white Horses, dressed in white," and ending up with the "Masters, Wardens, Assistants, and Members of those most useful Institutions the Benefited Societies, or Sick Clubs, as they are commonly called, preceded by different coloured Silk Flags." In the evening there was a dinner—"Ordinary and Extraordinary"—at the Angel Inn, for which the tickets were 7s. 6d. each.

The opening ceremony 150 years ago marked the fulfilment of a suggestion made eight years previously by Dr. William Younge (1762–1838). Dr. Younge was the son of a noted Sheffield physician. He took his medical training in Edinburgh and returned to his native town at the age of 25 "full of ability, energy, and large-heartedness." After two years in practice he

was so impressed by the need for hospital accommodation in the city that he wrote a pamphlet on the subject, signed it "X," and had 300 copies printed and distributed. One lady, a Mrs. Fell, was moved to give £1,000 towards the project, but it was three years before a town meeting was called "to inquire into the propriety of establishing an infirmary." Then it is possible that the apathy would not have been overcome but for the announcement of Mrs. Fell's gift. Supporting Dr. Younge in his campaign to get a hospital set up was Dr. John Browne (1740–1810). When Dr. Browne died the whole town went into public mourning.

One method of raising money for the hospital in the early days was to give benefit performances at the theatre. That on Monday, Nov. 27, 1797, must certainly have attracted the people, for the programme included "The Wonder"—a cryptic title which was explained by the subtitle, "A Woman Keeps a Secret."

Among those connected with the infirmary during the 19th century was Dr. Meriano Martin de Bartolome, who was President of the British Medical Association when it met in Sheffield in 1876. He was a native of Segovia and came of an old Castilian family. He moved to Sheffield after his marriage to a Sheffield lady and went to Edinburgh to study medicine. His successor as president of the medical school in Sheffield, Mr. William Fisher Favell, also took a prominent part in the B.M.A. Annual Meeting in Sheffield in 1876; his uncle had been President of the Association when it met there in 1845.

With the growth of specialist services in the infirmary an eye ward was set aside in 1823; the ophthalmic department was enlarged and a specialist appointed in 1877. In 1870 arrangements were made for the isolation of "contagious diseases and offensive surgical cases." In 1924 more beds were added for the ear, nose, and throat departments and the dermatological clinics.

The Sheffield General Infirmary acquired the title of Royal in 1895. It has naturally been associated with medical teaching in the city. In 1832 the existence of two medical schools led to the foundation of a rival hospital. One of the medical schools came to an abrupt end in 1835, when it was sacked and burnt by an anti-resurrectionist mob. The two hospitals were not united until 1939, when by Act of Parliament the Royal Infirmary and the Sheffield Royal Hospital became one corporation "to be called the Royal Sheffield Infirmary and Hospital."

FUTURE OF VOLUNTARY HEALTH INSURANCE

As a result of the transference to the Ministry of National Insurance of the administration of cash sickness benefits and the establishment of a National Health Service under the Ministry of Health providing comprehensive medical service for the entire population, the voluntary health insurance movement in this country, as represented by the approved societies, is facing the most serious problem in its history. It is evident that the area left to voluntary health insurance will be narrow, and that many plans which had been established for the benefit of the low-income groups not covered hitherto by a compulsory system will have to be abandoned. The cutting off of the State insurance side of friendly society administration will mean a great reduction of income, estimated at approaching £2,000,000 per annum, not entirely met by the relief from liabilities, and many of the societies will also be faced with difficulties owing to the transference of some of their experienced officers to the national administration. According to a return, which is incomplete, made to the Conference of Friendly Societies at Margate in September, the voluntary insurance membership at the end of 1946 was 6,465,808, and the membership on the State insurance side 6,742,719.

A long and well-informed article on voluntary health insurance in Western Europe, which occupies the greater part of one of the recent *Public Health Reports* of the United States Public Health Service,[1] enables a comparison to be made between the position in Britain and in five other countries —France, Belgium, Sweden, Denmark, and the Netherlands. In all these countries voluntary health insurance originated with the mediaeval guilds, and as these guilds passed out of existence the members of the community formed self-governing societies to provide sickness benefits as well as other types of mutual assistance. The friendly societies in Great Britain were the first to be encouraged in their development by the Government—this took place at the end of the 18th century—and were offered legal status and exemption from various types of taxes. During the 19th century a similar development took place in all the other countries. Down to the outbreak of the recent war the history of these societies was marked by increasing membership, the formation of larger units, widening scope of medical benefits, increased public supervision and control, increased availability for actuarial purposes of significant information on the incidence and duration of sickness, and, in Great Britain and the Netherlands, the emergence and expansion of special voluntary plans for medical and hospital services and home nursing. Denmark was the only country in which health insurance provided medical and hospital benefits for nearly all persons in the population.

The same development of social security programmes as Great Britain has seen since the war has taken place in one form or another in other countries. Denmark continues to administer its health insurance through approved mutual benefit societies. Sweden and Belgium retain the societies to administer their compulsory national health insurance systems. The Netherlands in its compulsory programme retains separate agencies for sickness and medical benefits, but the medical benefits are still administered through approved societies. France has created provincial and regional quasi-Government agencies to administer health insurance and other benefits within designated areas. In Great Britain, as already stated, approved societies will no longer participate in the national programme, and consequently considerable changes may be expected in the type of benefits the societies continue to offer through voluntary health insurance. Some of the smaller societies may be absorbed, some of the schemes be federated or consolidated. An idea has been put forward for the national amalgamation of provident schemes and similar plans to serve that section of the community which will prefer to make its own arrangements for hospital and other medical services. The spirit of the friendly societies is not easily broken, and intensive planning is taking place to meet a situation which the societies have accepted only under protest and with a feeling that their contribution to this field of endeavour, extending in the case of some of them—the Manchester Unity, for instance, and the Ancient Order of Foresters—for well over a century, has had scant reward from a Government which might have been expected to have treated them differently.

[1] *Public Health Report* of the U.S. Public Health Service, 1947, **62**, 733.

TRAVELLING FELLOWSHIPS IN MEDICINE

The Medical Research Council announces that it has awarded Rockefeller Medical Fellowships to the following for the academic year 1947–8: Kenneth Robson Hill, M.D., Lecturer in Pathology, King's College Medical School, University of Durham, and assistant pathologist, Royal Victoria Infirmary, Newcastle-upon-Tyne; John Ivor Pulsford James, M.S., F.R.C.S., honorary assistant surgeon, Royal National Orthopaedic Hospital, London; Hamish Nisbet Munro, M.B., Ch.B., senior lecturer in physiological chemistry, University of Glasgow; John Eric Richardson, M.S., F.R.C.S., surgical first assistant, London Hospital; Harold Scarborough, Ph.D., M.B., Ch.B., Beit Memorial Research Fellow, Medical Unit, St. Mary's Hospital, London; Sheila Patricia Violet Sherlock, M.D., Beit Memorial Research Fellow and assistant lecturer, Department of Medicine, British Postgraduate Medical School, London; Honor Vivian Smith, M.B., B.S., research assistant, Departments of Neurosurgery and Neurology, Radcliffe Infirmary, Oxford.

The Council has also awarded Dorothy Temple Cross Research Fellowships in Tuberculosis to the following: Alfred Gordon Heppleston, M.B., Ch.B., assistant lecturer in pathology, Welsh School of Medicine, Cardiff; Doreen Nightingale, M.S., F.R.C.S., first assistant, Surgical Unit, University College Hospital, London; John Robertson Sinton, M.B., B.S., late medical first assistant, London Hospital Annexe, Brentwood.

Correspondence

The G.M.C. and Medical Education

Sir,—Sir Herbert Eason's helpful exposition on the functions of the General Medical Council (Sept. 6, p. 359) provides much food for reflection on a topical subject—medical education. To enable persons requiring medical aid to distinguish qualified from unqualified practitioners is the duty of the G.M.C. Does it not fail, virtually, in this primary object by leaving the British public at the mercy of rampant quackery in the form of ubiquitous and alluring advertisements of articles alleged to provide health or cures of disease? Furthermore, the public (and G.P.s) also lack any sure guide to enable them to distinguish the genuine and spurious specialist within the profession. The definition of a "specialist" is long overdue. Professional efficiency and the public weal will be served by restricting the title to one with a *guaranteed* minimum special ability in his section of healing.

The Education of the General Practitioner.—Under this heading the President alludes to three principles which prevent the Council, he says, following the lead of the Goodenough report. The interpretation of these principles seems open to question. "The Council must deal with things as they are"—i.e., a C3 nation. Granted this, we must begin at the root of the health problem—the student's curriculum—and surely the situation calls for drastic changes like those in the Goodenough report. It wants to "avoid completing after qualification incomplete instruction given before qualification." This ideal is well served by simplifying the instruction so that its inculcation in a complete form is practicable. Thirdly, the Council holds that instruction in the essentials must be adequate before the final examination. Yet to subjects of the curriculum it is recommended that new ones now be added. Since the total time is not increased, this means that something must be discarded of what was formerly regarded as essential, in order to make place for the new. The Council's judgment of essentials is shown to be changeable and open to argument.

A New Concept of the G.P.—With doubts about the effective safeguarding of the people's health it is well to review the Council's proviso regarding "things as they are" and their remedy. The G.P. is still, when health troubles arise, the beacon light on life's journey. More than ever there is room for this "guide, philosopher, and friend," but the time has come for an entirely new concept of his role in the body politic. The old legend on the brass plate of "Physician and Surgeon" is purely historical. Not only do medicine and surgery, but each of many further subdivisions, now call for separate devotees—the *specialists*—making ever sharper the contrast with the *general* practitioner. Of our growing medical knowledge a specialist knows more and more about less and less. The G.P. must know inevitably less and less about more and more; he alone maintains responsibility for the whole patient.

Think of the present preparation of the young doctor who has to assume this responsibility. His spirit as a student, confronted with mountains of medical science (of which little plays any part in daily practice), is apt to be cowed. He only learns the bulk of medical facts in order to get through examinations, and inevitably forgets it a few months after. What humbug still to inflict what has become so detailed and specialized in anatomy, physiology, pathology, forensic medicine, and the rarer diseases of medicine, operative surgery, and so forth. The student of humanity needs mainly to handle patients, be confronted with the stark facts of necropsies, and feel that what is taught is not merely highbrow but repays thorough mastery. Instead of being an exhausted wreck with an inferiority complex he will, on qualifying, feel confident, alert, lively, and "ready for the fray," albeit conscious of his limitations and unashamedly ready to seek the aid of the specialist.

Realism in Relation to Daily Practice.—First, there are common ailments that mar the health of the majority. On the eradication of these he wants to be brilliantly informed, yet they are largely ignored by "things as they are" in the curriculum. I refer to poor physical tone, mental imbalance, dental decay (87% of our best young manhood which went to France in 1939 needed dental treatment, and 12% required dentures), dyspepsia, constipation, diagnosis of cancer, rheumatism, feet deformities, etc. Secondly, there are those disorders that assail the public with relative infrequency, the importance of which his training tends relatively to magnify. Most of these are amenable to domiciliary treatment, and he needs to be not only conversant with but to acquire full competence in this, his proper sphere of therapy. Why does the Council not insist on at least one year's assistance with a reputable G.P. before independent practice is allowed? In the other subsection of the occasional ills—those more formidable enemies of the race requiring specialists—the G.P.'s vital role is early recognition or shrewd suspicion that something serious is afoot calling for timely dispatch of the patient to the fountain-head. His concern is the deviation from health, not the minutiae of pathology. Instead, with educational "things as they are," the keen student tends to become a general pseudo-specialist. Knowledge of what health is, understanding, sympathy, and tact come not from books but by constantly being concerned with patients. What a brilliant example of this clinical approach to sickness is supplied by Sir Heneage Ogilvie's article on the "Early Diagnosis of Cancer of the Oesophagus and Stomach" (Sept. 13, p. 405). How little details of pathology and treatment figure therein, but the address reeks of humanity.

Take rectal cancer. It comes late, having been treated for many months as piles or dysentery, etc. The students needs to be taught the paramount importance of putting a finger well up the rectum in every case—i.e., regardless of the complaint of or the presence of piles. Directly the parts feel unnatural he seeks the expert's opinion. And so with the slightest doubt in the breast, with haematuria, etc. Yesterday (Sept. 15) I found a cancer crater extending up into the rectum from the verge of an external pile mass. All the laconic note on the case sheet (Jan. 13, 1947) said was, "Haemorrhoids, for operation." Today a lady in the late 30s came with a few months' pain p.c., some vomiting, wasting, and bringing radiological evidence regarded as that of leather-bottle stomach. It had been put down as gastric cancer. Examination below had been deferred because of menstruation. I examined her and found a fixed, encircling growth of mid-rectum. Think of the "acute abdomen." Here the patient relies on the G.P. for an unerring sense of something surgical amiss to save fatal delay. Again, it is not so much details of pathology, but a definition of the threat of peritonitis, obstruction, haemorrhage, and so forth that the G.P. needs to recognize. Only several months' residence in hospital covers the necessary familiarity with this problem of daily practice.

The curriculum needs to be cleared of the masses of academic jargon and injected with more about the common roots of indifferent health. At the same time, by cutting the total curriculum down to 5 years, the doctor is early launched into assuming responsibility for his patients. It is then his ambition is fired and his energies readily mobilized. He quickly acquires practical knowledge safely as an assistant still under the eye of his seniors, spending one at least of the next three years with a reputable practitioner. "You can't get the terriers too soon at the rats," said Sir Robert Hutchison.—I am, etc.,

Bristol. A. Wilfrid Adams.

Disseminated Sclerosis

Sir,—With reference to the annotation entitled "On the Track of Disseminated Sclerosis" (Sept. 20, p. 460), I feel the following facts should be placed on record. The incidence of four cases of disseminated sclerosis in a group of seven laboratory workers engaged in studying the aetiology of a disease in sheep is an event which must arouse sympathetic regret but cannot occasion surprise. What does surprise me is the statement of the writer of the annotation that "chance has now thrown up an entirely new approach to the problem. . . ." While I agree with the writer that this may "open the way to a complete understanding of the cause of disseminated sclerosis and perhaps to its prevention and even cure," I would like to point out that the previous literature on this specific subject is completely ignored.

In a communication to the Association of Physicians of Great Britain and Ireland (published in the *British Medical Journal*, 1927, **2**, 13) I referred especially to the occupational incidence of disseminated sclerosis and placed particular emphasis on farming. I then indicated that this was a channel into which inquiry might profitably be directed. The unanimity with which I was attacked convinced me of the probable accuracy and truthfulness of my observation. In 1921, Dreyfus, H. (*Z. ges. Neurol. Psychiat.*, 1921, **73**, 479, emphasized the fact that the disease predominates among country dwellers in his analysis of 1,151 cases, a statement which I confirmed from my own experience (*Glasg. med. J.*, 1923, **100**, 297). Boyd's *Pathology of Internal Diseases* (4th edition, 1944, p. 774, Philadelphia) refers to these observations by Dreyfus and myself, and S. A. Kinnier Wilson (*Neurology*, 1940, **1**, 150, London) also records my observations on this subject. Under my direction clinical

investigation has been continued over a long period of years into various aspects of the problem, including particularly the occupational incidence of the disease, with special reference to farming. It is hoped that the results of this work on a series of 389 cases of disseminated sclerosis will shortly be embodied in a paper by a member of my staff.

Your annotation refers optimistically to the prospects of discovering the *cause* and *prevention* of this illness. At the moment I personally feel that the detection of the mode of transmission is the next most valuable step that could be made, and there is a reasonable prospect that we are approaching this state of knowledge. In 1923 I made the following statement (*Glasg. med. J.*, 1923, **100**, 290): "A still further advance may then be hoped for in the detection of the mode of transmission and prevention of infection in the individual."

It cannot be assumed that the causal agent of disseminated sclerosis will produce pathological changes in the nervous system of susceptible animals identical with those found in the human subject. Equally it cannot be assumed that infection by the same agent will necessarily result in identical tissue reaction in animals of different species. As an example of this important general principle, the causative agent of "louping ill" is known to produce a separate histological picture in sheep, pigs, and mice (Brownlee, A., and Wilson, D. R., *J. comp. Path.*, 1932, **45**, 67). Past experience has shown that this is an essential difficulty in attempting to transmit disseminated sclerosis experimentally to animals.—I am, etc.,

Glasgow. DOUGLAS K. ADAMS.

Treatment of Varicose Veins

SIR,—Prof. A. M. Boyd and Mr. D. J. Robertson (Sept. 20, p. 452) discuss some of the causes of the unsatisfactory results in the treatment of varicose veins. They also illustrate their article with some very interesting phlebograms. With regard to the incidence of the condition, the authors state that 95% of patients attending civilian varicose vein clinics are women. This was certainly not the case when I had the vein clinic at St. Bartholomew's Hospital, where I found that approximately one-quarter of my cases were among men, and this figure was borne out by my private cases. I cannot agree with the suggestion that varicose veins seldom cause serious discomfort. The condition invariably develops very gradually and the patient gets used to the increasing heaviness in the limbs. Severe pain is certainly not a common feature, but the discomfort and disability are great and are aggravated by conditions which involve much standing. At the same time, the degree of discomfort is not necessarily related to the actual size or extent of the veins.

Recurrence of varicosities after treatment may mean a failure to obliterate all the incompetent veins; it may mean a gradual recanalization of veins which were obliterated at the time of treatment; or it may mean the gradual development of varicosities in other veins. My own experience has led me to an operation—a combined excision and ligation—with at least two, and possibly three, incisions in the thigh and with two incisions in the calf, with a further large popliteal incision where the external saphenous vein is involved. Subsequently, any small remaining veins are treated by injections. At the same time I do not believe that the mere ligation operation at sites of valvular incompetence of communicating veins will secure obliteration of extensive varicosities, even when combined with simultaneous injections. By suitably planning the direction of incisions it is possible to use the flexure lines of the skin, to get adequate exposure of considerable lengths of the veins, and to avoid incisions in the long axis of the limbs. In one week recently I saw three patients all of whom had had recent ligation and injection operations at the groins, and all of whom showed complete incompetence of the whole saphenous systems right up to the level of the operation scars. Neither the symptoms nor the signs suggested that there had been any appreciable alteration as the result of the treatment.

Operative experience also suggests that by far the most important deep communicating vein is the one situated at the junction of the middle and lower third of the leg as a communication between the internal saphenous vein or one of its branches and the deep veins. Certainly, from the point of view of local symptoms, the failures of injection treatment, and the local complications such as eczema, ulceration, etc., this is the branch which is so often responsible for a reflux of blood into the superficial veins. The presence of this vein can often be inferred from the physical signs but cannot be proved until operation is carried out.

Prof. Boyd states that between October, 1942, and February, 1943, he saw 12 patients with deep thrombosis following injection treatment in the Army. I am not quite clear from the context whether these patients had had a combination of operation and injections or injections alone. In my own series of approximately 2,000 varicose vein cases I have never seen this complication following operation, operation and subsequent injections, or injections alone. On the other hand, whatever form of treatment is adopted, there are cases which show temporary and transient oedema, particularly on the inner side of the foot and ankle, for some weeks after treatment. This is much more likely to occur where there is much subcutaneous tissue, where operations have been extensive, or thrombosis has been widespread, but I have never known this oedema persist. The proper treatment, of course, is to control the oedema with external support, and, as lymphatic function is re-established, gradually to lessen the external support. In view of what Prof. Boyd says about the reaction of men in the Army to varicose veins, I am wondering if some of the deep thrombosis cases were really post-treatment oedemas and not deep thromboses at all. The presence of an abdominal collateral circulation would be conclusive. The authors suggest that this complication of deep thrombosis may have been due to the passage of injection fluid into the femoral veins, where the circulation may be sluggish. I am sure that some of the sclerosing fluid must get into the deep veins following injections, but there are two comments I would like to make in this connexion. The first is that the more normal the structure of the vein wall, the greater the difficulty in getting thrombosis with sclerosants. And, secondly, that in those patients who have a slight sensitivity to quinine the drug is tasted within approximately 15 to 20 seconds of injection of the peripheral veins of the lower limb with the patient lying down.

London, W.1. REGINALD T. PAYNE.

SIR,—Prof. A. M. Boyd and Mr. D. J. Robertson's most interesting article on the above subject (Sept. 20, p. 452) calls attention to the unsatisfactory results of the treatment of the all too common varix. I feel that their conclusions tend to advise a standard treatment of varicosities needing surgical care. They state: "Ligation is required at four sites . . ." "High retrograde injection of large quantities of . . . sclerosant is dangerous," etc. I submit that each case of severe varices needs a careful assessment and that varied treatments are called for according to the findings at the time of examination. The Ochsner-Mahorner tourniquet test will tell the operator the site of the incompetent communicating veins. Four standard sites of ligation will then not be found necessary in the majority of cases. For instance, in a large series of cases these surgeons found that it was only necessary to ligate the saphenous below the knee in 2% of patients.

Again, to condemn the use of retrograde injection of a sclerosant into the distal portion of the internal saphenous divided at the fossa ovalis is far too sweeping a statement. If the patient has suffered from an antecedent deep-vein thombophlebitis care should be observed regarding the use of any sclerosant. Has there been a recent superficial phlebitis? In these cases use no sclerosant if a severe reaction is to be avoided. There are other indications for the modification of the type and amount of sclerosant to be used. The "mid-Hunter blow-out" (aptly named by various American surgeons) is, as proved by Prof. Boyd and Mr. Robertson, responsible for the admission of much sclerosant into the deep system. The careful use of a Stevenson needle (or one of its modifications) can mitigate this risk. Again, hypertonic saline in the hands of Harold Dodd has satisfied him and many others that damage to the normal intima does not occur.

In a short letter I can but endeavour to point out that standardized treatments and dogmatic statements cannot be applied to the vagaries of the varix. It is seldom that two cases present exactly the same problem. The authors of the article under discussion are, however, to be congratulated on calling attention to the fact that the treatment of varices can be

unsatisfactory. There are still many avenues to explore in arriving at the perfect sclerosant and the perfect operation.—I am, etc.,

London, W.1. R. ROWDEN FOOTE.

SIR,—Prof. A. M. Boyd and Mr. D. J. Robertson (Sept. 20, p. 452) are to be congratulated on calling attention to the two complications associated with ill-judged surgery of varicose veins. The commonest cause of recurrence after operation is failure to tie the saphena vein flush with the femoral vein and to tie and divide all its terminal tributaries. During the last four years I have seen 123 recurrences of this type. Having collected large series of cases in which both the vertical and oblique incisions were used, I have no hesitation in recommending the latter; it heals so much better, and if rightly placed and of sufficient length it gives all the exposure that can be wished for.

My clinical experience gained in operations on nearly 3,000 cases makes me agree with Boyd and Robertson as to the site and frequency of the incompetent perforating veins. There is no difficulty in discovering the presence of such veins, but it is not always easy unless a very long incision is made to find the exact spot where the vein perforates the deep fascia. In a small percentage of cases the perforating veins are grossly incompetent, and it is essential to divide their flesh with the deep fascia. The most certain, simplest, and safest way of doing this is to remove the saphena vein with a Mayo or Babcock vein enucleator.

Like Boyd I was struck by the frequency of deep thrombophlebitis in Service personnel after the combined ligature-injection treatment of varicosities, and since 1943 I have tied the vein and postponed injections until the patient was walking about normally. This may be slow in producing thrombosis of all the varicosities, but it certainly lessens the risk of deep thrombosis and shortens the convalescence. Finally I should like to support Boyd and Robertson's plea for a careful clinical assessment before operation is advised. The mere presence of varicosities is not sufficient reason for advocating operation or injection.—I am, etc.,

Liverpool. J. B. OLDHAM.

SIR,—In their article "Treatment of Varicose Veins" Prof. A. M. Boyd and Mr. D. J. Robertson (Sept. 20, p. 452) draw attention to the danger of retrograde injection of sclerosing fluids after ligation and state that recurrence usually occurs from inadequate ligation. With their first statement I am entirely in agreement and have long since abandoned it; further, I would point out the folly of relying on even an extensive thrombosis produced by this method to give a permanent cure. Hanschell showed many years ago that even soundly thrombosed veins, where the thrombosis is caused by sclerosing fluids, frequently recanalize in a remarkably short space of time.

With regard to the adequate ligation, I think their description is over-simple and their claims over-optimistic. My work has led me to believe the arrangement of deep communications is very much more complicated (*Lon. Hosp. Gaz.*, 1945, **48**, 221). I believe that it is impossible to be sure of preventing recurrences unless all deep communications are dealt with and that this is not a feasible procedure because of the enormous variations. Many times I have seen veins not previously varicose appear after adequate ligation, and I believe this results from deep communications which were normal when the original operation was performed. I have on one or two occasions ligated such deep communications with most gratifying results.

I think ligation the only method worth using in severe varicose veins despite my previous remarks, but follow-up for years, not months, is needed to be sure the case is cured.—I am, etc.,

Hutton, Essex. W. D. PARK.

Antihistamine Drug for Pruritus of Jaundice

SIR,—There is one action of antihistamine drugs to which we are unable to find any reference in the published literature. If it has been recorded previously it is of sufficient importance to warrant a further note. We have found that patients suffering from the pruritus of jaundice, hitherto an intractable therapeutic problem, derive marked relief from the administration of antihistamine drugs. The benefit is so great that it may well make life intolerable for the jaundiced patient with an inoperable carcinoma.

The drug which we have used entirely is "neoantergan" ("anthisan"), prepared by May and Baker but not yet upon the market. The dosage given was 0.2 g. at four- to six-hourly intervals. Four-hourly dosage appears necessary because the effect of a single dose of antihistamine drugs only lasts for about six hours. It is perhaps for this reason that we have noted in some cases a recurrence of skin irritation in the early hours of the morning, which disappears when the next dose is administered. "Benadryl," which has a similar action and is available, will certainly produce similar benefit.—We are, etc.,

R. B. HUNTER,
Edinburgh. D. M. DUNLOP.

New Treatment of Rheumatoid Arthritis

SIR,—At the Bath Rheumatism Congress in May, 1928, I read a paper on the endocrines in arthritis in which I pointed out that women suffering from rheumatoid arthritis who became pregnant experience a marked relief of all their symptoms, but that they relapsed again during the puerperium, and I suggested that the improvement during pregnancy was due to some endocrine change, a flooding with some special secretion or an inhibition of other active gland product. The balance of the endocrines is much more unstable in the female. Stimulation of the secretion of pituitrin by the internal secretion of the ovary is arrested by that of the corpus luteum. It is noteworthy that at about the same time Cumberbatch and Robinson obtained improvement, often lasting in character, by "cooking" the ovaries with diathermy, and they believed that certain forms of arthritis were mainly due to the inactivity of the corpora lutea.

Dr. Imre Barsi raises the whole question again (Aug. 16, p. 252). He assumes that "a hypothetical material circulates in the blood of pregnant women," and, as pregnant women suffering from arthritis materially improve, he has injected the blood of pregnant women into cases of arthritis, with definite and permanent results. Unfortunately, as Dr. M. D. Warren points out (Sept. 13, p. 433), he does not mention if there was any blood grouping having been carried out, and it is quite possible that the improvement was due to protein shock. Case 4 reported by Dr. Barsi was a male aged 66, and he claims that he was definitely cured of his arthritic symptoms. This is difficult to explain, and it certainly looks as if this improvement was more likely due to protein shock.

The whole question should not be allowed to drop, and I would make the following suggestions: (1) That only those cases of atrophic rheumatoid arthritis occurring in young women should be treated by blood transfusion from pregnant women; (2) that blood grouping be carried out; (3) that an equal number of controls be treated with normal blood—i.e., blood from non-pregnant women or males; (4) that records of temperature, sedimentation rate, and blood sugar be fully recorded.—I am, etc.,

Harrogate. G. L. KERR PRINGLE.

SIR,—I wrote Dr. Imre Barsi requesting information as to typing the blood. He replied: "The typing is very important and must be done with the greatest care. I always use blood of the same type if I can get it; if not, I use type O, but I always make in such cases a cross-typing before transfusion."

So much for the blood grouping, but I should like to know if the haematologists at Oxford could not find out what it is in the blood of the pregnant woman that arrests rheumatoid arthritis.—I am, etc.,

Salisbury. G. BAYNTON FORGE.

Penicillin in the Treatment of Diphtheria

SIR,—Recent articles on the use of penicillin in diphtheria prompt me to place on record two cases as follows.

(1) A boy of 8 years was admitted to Shieldhall Hospital on Nov. 4, 1946, on the fourth day of illness. A doctor had not been called earlier, as his symptoms were at first attributed to mumps. He had had immunizing injections in 1940.

(2) A boy of 7 years was admitted on Nov. 5, 1946, on the third day of illness. His doctor had regarded him at first as a case of quinsy.

On admission both patients were profoundly toxic, with profuse nasal discharge, great enlargement of cervical glands, and the fauces

covered with diphtheritic membrane. Throat swabs revealed virulent *C. diphtheriae* (atypical). Each patient was given 40,000 units of antitoxin intravenously and 60,000 units intramuscularly, and within 24 hours of admission a further 40,000 units intravenously. By Nov. 8 neither showed any improvement and a fatal issue seemed almost inevitable. 50,000 units of penicillin was then administered intramuscularly, followed by doses of 20,000 units 3-hourly, which were continued until Nov. 19 and Nov. 17 respectively. By this time each throat was clean, the swelling of glands had subsided, the nose was free of discharge, and the general condition remarkably improved. Recovery was very gradual, being interrupted by palatal and pharyngeal paralysis in both cases, and by ciliary paralysis in one of them. It was 11 weeks from the onset before the patients were considered fit to sit up, and further convalescence was uneventful.

De, Chatterjee, and Ganguli (1947) advocate giving penicillin without serum to mild and moderately severe cases of diphtheria, and report success in a series of 27, but few if any workers of experience in this country will support them in such a hazardous procedure. The need for penicillin in addition to serum in mild and moderate cases is also debatable. Some benefit may be observed where there is superadded septic infection, but for pure diphtheria we have a perfectly efficient remedy in antitoxin. It is for the gravely ill patient coming under observation after several days' illness, when no amount of antitoxin can undo the damage already suffered, that the value or otherwise of penicillin becomes vitally important. One must be clear, however, as to what a really severe case of diphtheria amounts to. Dodds' (1946) group of 13 patients treated with penicillin are nearly all styled "severe pharyngeal," and while they were given considerable intramuscular doses of antitoxin, only one was deemed ill enough to be given an intravenous dose. In four of the "severe" cases, moreover, hospital treatment lasted for only 33 to 35 days, a period quite inadequate for all but the mildest of infections. Long's (1947) three patients were, judging by his reports, all very ill, one indeed being regarded as hopeless, but again none was given an intravenous dose of serum. This writer mentions the striking value of penicillin, of which he advises giving at least a million units per day in severe cases, but states that in this country no case of diphtheria without secondary infection appears to have responded to treatment in a convincing fashion.

In the two cases reported above there was no apparent secondary infection, and a much smaller amount of penicillin was used. The membrane did not clear from the throat much more rapidly than usual, nor was the date determined when the fauces were free of organisms, but in many years' experience of diphtheria I have never seen such a striking recovery as was made by these patients. Hitherto sceptical, I am now convinced that penicillin may be a life-saving agent in this disease. I await the opportunity to find further proof of its value, but grave cases of diphtheria are now rarely observed in hospital.—I am, etc.,

Glasgow. WILLIAM NAPIER.

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The Extent of Neurosis

SIR,—Dr. H. G. St. M. Rees (Sept. 20, p. 468) invites "our older brethren in general practice" to comment on the extent of neurosis to-day compared with what it used to be. I am not now engaged in general practice, but of my 45 years of professional life approximately half that time has been spent in general practice, always with a psychological bias, and the remainder has been spent as a consultant medical psychologist. Moreover, during the war years I took the opportunity of refreshing my experience of general practice by lending a hand to hard-pressed colleagues in their surgeries and visits. I may therefore be considered qualified both by age and experience to express an opinion.

When I look back to the crowded surgeries of my early days in Leeds, and before that to the time when part of my vacation even before qualifying would be spent in "taking surgeries" for my father in London, it seems to me that the greatest difference between then and now is that patients had a simple faith in their doctor and in a bottle of medicine which is lacking to-day. The patient of forty and fifty years ago did not pretend to any knowledge of physiology, still less of pathology, and was content with a simple explanation and his doctor's "say so." To-day he comes full of morbid fears engendered by advertisements of "stomach powders," vitamins, and hormones, and fed by imperfectly digested scraps of information gained by his wife's attendance at "the welfare," or by comparing notes with an O.P. hospital patient. The patient of bygone years had but two bogies, cancer and consumption, but the modern is familiar with stomach and duodenal ulcers, pernicious anaemias, coronary thrombosis, sinus infections, and has taken up "blood pressure" where the doctors are beginning to leave it off. He has transferred his faith from the practitioner to a clinical armamentarium, from the bottle of medicine to a course of hypodermic injections. This attitude makes nonsense, of course, of the demand for free choice of doctor under the Health Act. For good or ill the old type of family physician, whose personality was his greatest asset, has gone. His place has been taken by the microscope and test-tube.

The changes that have taken place in the art and science and practice of medicine can be gauged by recalling the kind of ailments one dealt with in the old days compared with the present. The bulk of one's patients at the morning surgery would be mothers and their babies. Diets were not standardized, and not every infant flourished on food consisting of "the same as we has ourselves," though some most reprehensibly did so. Rickets and its accompanying catarrhal complications were common, and dirt and sepsis more in evidence. There would be women who came to "engage," and this entailed nothing more than entering the particulars in a book. Antenatal examinations were unknown and would have been regarded as indelicate. My father taught me to deliver under cover of the bedclothes. Among the young unmarried women patients chlorosis and gastric ulcer were common, and extensive varicose ulcers demanding large quantities of Unna's paste were frequent in the elderly. The evening surgeries would bring a larger proportion of men. A simple dyspepsia, not yet described as a "gastric stomach," brought a good many of them and was usually the result of too hearty indulgence in beer. Chronic alcoholic cirrhosis of the liver was frequent, while the secondary and tertiary manifestations of syphilis such as one only meets with nowadays in textbooks were constantly providing problems in diagnosis. Respiratory troubles in the shape of acute and chronic bronchitis were, I feel sure, more common in those days, and like the syphilis were the result of lack of early and effective treatment. Chronic tuberculous abscesses and discharging empyemas took up much time with the necessary dressings. I have a very strong impression too that stone in the kidney and bladder was more common than it is now, and certainly one saw more urethral strictures due to gonorrhoea than one does in these days, again due to ineffective treatment. The early diagnosis of phthisis without the aid of *x* rays and often without a sputum test kept one clinically on one's toes, and there was always the possibility that an undiagnosed typhoid was sitting on the bench waiting his turn.

Now if I compare all this with my more recent experiences I am tempted to say that the patient of former times went to his doctor because he had something the matter with him, whereas the majority of patients to-day seek aid because they *fear* that they may have something wrong. There *is* a change in the character and incidence of neurosis during the last half-century. My early interest in neurotic illness was stimulated by cases of frank hysteria such as one only sees now in the war hospitals. The hysteria was manifested by girls who were frustrated in their love affairs or by married women as a protest against a domineering male. I feel sure that, if there had been the widespread anxiety states which permeate medical practice to-day, I should have noted it.

As for the causes of this change, it would exceed the limits of a letter if I attempted to elucidate them here. I can only point out that frustration produces aggression, and repressed aggression shows itself as anxiety. There are many obvious causes of frustration in these days of austerity, but I believe we must look deeper than that. The whole tendency of social legislation during the last half-century has been to take more and more responsibility off the individual and to put it on the State. The State thus becomes a parent substitute, so that the individual instead of learning self-reliance is kept in a state of pupillage and becomes afraid or unable to take action on his own account. His attitude towards the State is ambivalent just as is the attitude of an adolescent towards the parents. He looks to the State for guidance and protection, but at the same time he resents the control which the State puts on him. There is an increase of masked or repressed aggression and consequently an increase of anxiety.

This reads as if I were a Conservative "die-hard," but actually I am a Socialist and shall welcome the Health Act provided it is implemented in such a way as to encourage the maintenance of mental and physical health in lieu of trying to "cure"

disease. We cannot set the clock back and revert to the old "laissez faire" policy and the devil take the hindmost. The modern world demands more and more organization, which means State control. But the parental State must take care that it is a wise parent, not possessive or autocratic. It has to show by example and precept that frustration occurs in proportion as the individual wants things for himself. The man who says, "How much can I give in the way of service?" can never be frustrated. His aggressiveness will be used in overcoming the difficulties of life, and in co-operation with his fellows he will find freedom from anxiety. The solution of our difficulties therefore is seen to be a moral one. We await an inspired leader who will teach Socialism as the Brotherhood of Man, which necessarily implies the Fatherhood of God.—I am, etc.,

Lapworth, nr. Birmingham. R. MACDONALD LADELL.

SIR,—I should like to hear the opinions of a specialist psychiatrist on the following highly controversial problem. Is the extension of parental control over the child beyond the age of adolescence a harmful occurrence? As a general practitioner without specialized psychiatric knowledge I have always regarded the excessive use of parental control over an individual as productive of moral harm, in the sense that the individual never learns to fight his own battles in life or to become self-sufficient; rather he develops an irresponsible and immature reaction to the problems of his environment.

If the latter view is generally accepted as correct, surely the continued extension of Government control over the individual is a menace to the moral health of the nation, and a threat about which the medical profession as a whole should be gravely concerned. One has seen the dire results of the excessive use of State control over the individual in Germany, and in the production of a so-called "national psychosis." This letter has no political bias but is a warning against what in the opinion of the writer is a serious threat to the health of the nation—I am, etc.,

Prestatyn, N. Wales. T. H. HARGREAVES.

SIR,—When I was regional medical officer at Norwich I began on Aug. 8, 1939, to sort all the cases examined by me, which were referred by the approved society for opinion as to fitness for work, into three groups as to whether the disability was occasioned by (1) organic disease, (2) psychogenic factors, or (3) mixtures of both. The intention was to collect at least 2,000 cases, but the task was interrupted by the war.

However, since the matter is being ventilated in your correspondence columns I venture to submit my findings, whatever they may be worth, merely on the basis of 189 cases: organic 95 (50.26%); psychogenic, 34 (17.99%); mixed, 60 (31.75%).—I am, etc.,

Ditchling, Sussex. G. C. ADENEY.

SIR,—A nervous breakdown, or a neurosis, may be defined as a failure satisfactorily to correlate the attitude of mind with the circumstances of life. The cause, put briefly, is an unsatisfactory philosophy of life. The commonest portion of this is fear—fear of economic and social insecurity, sexual fears, including those of wanting and not wanting a pregnancy, and (partly brought about by safety-first propaganda) fear of living.

The only satisfactory philosophy of life I know is that found in Christianity, and I believe that until comes "the conversion of England" neurosis in this country will continue. Christian faith is the only weapon which will successfully combat fear.—I am, etc.,

Pettswood, Kent. G. C. MILNER.

Care of the Elderly

SIR,—In your issue of Sept. 27 Miss Olive Matthews praises the recent B.M.A. Report on *The Care and Treatment of the Elderly and Infirm* and expresses a hope that it will reach a wide public. She, and others, may be interested to know that a popular illustrated version of this Report has been prepared which it is hoped to publish early this month.—I am, etc.,

London, W.C.1. JOHN PRINGLE,
Public Relations Officer,
British Medical Association.

POINTS FROM LETTERS

Bornholm Disease in the Tropics

Dr. DOUGLAS RADCLIFFE (Old Cairo, Egypt) writes: In view of the recent article in your columns relative to Bornholm disease by Drs. W. M. Jamieson and D. M. Prinsley (July 12, p. 47) and the further reports of cases by Drs. A. McE. Turnbull (July 19, p. 111) and J. V. Smith (Aug. 2, p. 188), I thought it might be of interest to report what appears to be a personal experience of this disease. While away on holiday in Alexandria this year, on Wednesday evening, July 30, I noticed that my pulse rate was 96 and experienced a slight feeling of malaise. The following morning on waking there were no symptoms and I felt perfectly well until about 9 a.m. I then experienced a sensation of liver discomfort and pain. . . . This increased and very shortly afterwards there was a general sense of malaise and I went to bed. An hour or two later my temperature was 102.5° F. (39.1° C.), the pulse rate 100–110. I had a slight rigor and began to experience what appeared to be a typical attack of acute cholecystitis. There was quite severe though transient nausea but no vomiting; complete anorexia, acute pain in the right hypochondrium, and I was immobilized completely. The slightest bending movement caused considerable pain. My respirations were very shallow owing to the pain, which was accentuated by breathing, and the upper right rectus muscle was markedly on guard; and on palpation the region of the fundus of the gall-bladder was very tender, although muscular guarding made self-examination difficult. There was no jaundice at that time or later, and bowel function was perfectly normal. In view of the above symptoms, which were very acute during the latter part of the day, I took sulphadiazine tablets, 1 g. 4-hourly, and required sedation at night in the form of "cyclobarbitone." The following morning, however, all symptoms, acute though they had been, had almost entirely abated, my temperature was normal, the pulse rate between 80 and 90, and except for a slight general epigastric discomfort on taking a deep breath or on palpation I felt well. In view of the apparent seriousness of the symptoms of the previous day I remained in bed. The following day, Aug. 2, however, further symptoms occurred. There was a deep dull pain, which was greatly exacerbated by deep breathing but which eluded any definite localization on my part, affecting the epigastrium and the lower part of the chest on both sides and which I deemed to be diaphragmatic in nature. At the same time the pulse rate rose again to 100 and the temperature to 101.5° F. (38.6° C.). As the day progressed the pain seemed to vary in its distribution, being related to the angle of the scapula and the lower right side of the chest, postero-laterally. Owing to the complete remission of obvious signs of cholecystitis I discontinued the sulphadiazine tablets. On the following day temperature and pulse rate remained at about the same level to begin with, dropping somewhat in the afternoon. The pain, however, shifted and was related to the intercostal muscles around the right breast, which were acutely tender on palpation. Further more there was severe pain on deep inspiration related to the back of the chest but not related to the intercostal muscles. I was seen by a colleague (Dr. H. Langley) during the afternoon and he could find no signs of pleurisy or abnormal chest signs on auscultation, nor were the liver or gall-bladder palpable. We were at a loss for a diagnosis, it being agreed tentatively that diaphragmatic pleurisy plus some intercostal fibrositis seemed most nearly to accord with some of the symptoms. The following day, Aug. 4, I was free from pain, and apart from slight malaise which passed off during the day I felt quite well. . . . No other people in the hotel in which I was staying were affected, either before or after, by a similar type of syndrome.

Haemorrhage in the Newborn

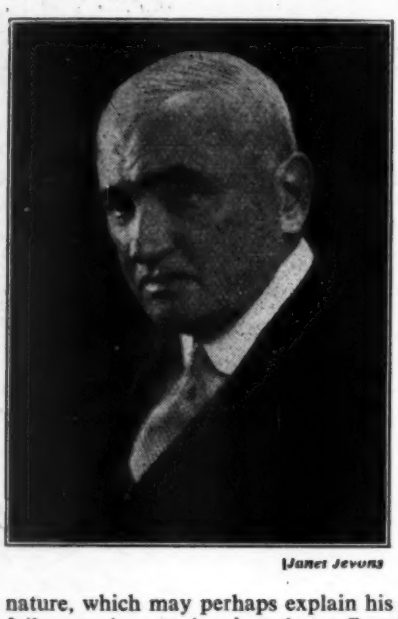
Dr. P. C. WALLACE (London, S.W.10) writes: The following case strikes me as being of unusual interest. On Sunday, Sept. 7, 1947, a female child weighing 6 lb. 4 oz. (2.81 kg.) was brought into the world at about 11.30 p.m. The district nurse was present and facilitated the perfectly normal delivery. Labour was not prolonged and was not difficult. It was the mother's third child. The child was apparently in good health. At 12.45 p.m. on Monday, Sept. 8, the child vomited about 2 dr. (7 ml.) of dark red blood. At 5 p.m. the same thing occurred, and again at 8.45 p.m. At 9 p.m. the child vomited an even greater quantity of blood—about 3-4 dr. (10.5–14 ml.)—and the district nurse sent for me. I arrived there about 9.30 p.m., and in view of the repeated haemorrhages 4 ml. of the father's blood was injected into the buttock of the child. No further haemorrhages were noticed until 5 a.m. on Tuesday, when the child brought up a very small quantity of tarry blood. Since then no haemorrhages have occurred. Glucose and saline were given per rectum on Monday and Tuesday, but on Wednesday the child commenced breast feeding and has been since then taking its feeds quite well. The first two motions were tarry, but after these the stools became normal in colour and appearance. Can anyone throw any light on this interesting phenomenon? Haematemesis of the newborn is well defined in the textbooks, but surely the amount of bleeding in this case is of rare occurrence.

Obituary

W. E. MILES, F.R.C.S.

Mr. Ernest Miles, who was known all over the world for his abdomino-perineal operation for cancer of the rectum, died in London on Sept. 24. He was also eminent in other fields of surgery and for many years he had been consulting surgeon to the Royal Cancer Hospital.

William Ernest Miles was born in 1869 in Trinidad, the only son of William Miles, J.P., headmaster of the Queen's Royal College in that island, where his son was accordingly educated. Thence he went to the medical school of St. Bartholomew's Hospital, London, where he qualified M.R.C.S., L.R.C.P. in 1891, becoming F.R.C.S. in 1894 at the early age of 25. He was demonstrator of anatomy at St. Bartholomew's from 1896 to 1899, in which latter year he was chosen assistant surgeon to the Royal Cancer Hospital. He reached the senior staff there in 1903, and was also surgeon to the Gordon Hospital for Diseases of the Rectum. Though much mellowed in later years, in his early days he was of a somewhat irascible and uncompromising nature, which may perhaps explain his otherwise unaccountable failure to be appointed to the staff at St. Bartholomew's. The American College of Surgeons made him an honorary fellow in 1930, and four years later he received a similar honour from the Royal College of Surgeons in Ireland. Among the many other distinctions which he achieved were those of Lettsomian Lecturer; member of the National Radium Commission; Honorary Fellow of the American Proctological Society; Foreign Associate of the French Academy of Surgery; and he was consulting proctologist to the Queen Alexandra Military Hospital, Millbank, and to several other hospitals. He was a keen Territorial officer before the war of 1914, and served in France and Belgium, with the rank of lieutenant-colonel, commanding No. 7 Red Cross Hospital. Later he became D.A.D.M.S. of the 58th Division, and, after commanding No. 56 General Hospital, he was appointed consulting surgeon to the Etaples Area. He contributed the section on diseases of the rectum in *Postgraduate Surgery* and most of his other writings were concerned with general proctology or with cancer of the rectum.



Janet Jevons

Miles was a man of really original mind, with the necessary perseverance to bring his ideas to fruition. As an all round surgeon he was in the front rank, but in his special field of proctology he achieved a reputation that was, and is, world-wide. His thorough training as an anatomist formed the essential background for the development of his rectal operations. It is true that some of his researches into intestinal surgery did not bear the test of time: for instance, his method of "obliterating the left broad ligament," which he devised and for some years practised for the relief of prolapsed sigmoid and the constipation occasioned by it; and also his plan for relieving digestive troubles by cutting a peritoneal ligament which, he thought, impeded the working of the third part of the duodenum. But he was always willing to learn by his mistakes and to abandon a method which time showed to be unserviceable. His routine rectal operations were admirably done and with excellent results, but his reputation has been most securely established by his operative treatment of cancer of the rectum. Basing his work on the most careful and prolonged study of the post-mortem appearances of metastases, and on observations made in the operating theatre, he devised a formidable technique for the complete removal of malignant growths in one sweeping operation, which, though the death rate was at first higher than that of less extensive procedures, at least showed a much higher proportion of permanent cures than any other method previously available. Devoting himself more and more to perfecting this operation, he quickly reduced the operative mortality to quite a small figure, and he also cut short the time taken to complete the operation. Originally, it needed an hour and a half; by training his assistants very carefully (Mr. Lawrence Abel was foremost among them) and avoiding every unnecessary movement, he got it down to an hour, then to 45 minutes, and eventually by extraordinary surgical dexterity to half an hour and even less. His fame soon spread, and hundreds of visiting surgeons from overseas went to the Cancer Hospital to watch his technique.

In his youth Miles was a keen lawn tennis player, boxer, and steeplechase rider; he remained a devoted follower of racing, and was said not to have missed seeing the Grand National for fifty years or thereabouts. One of his favourite stories—and he had a big repertory as a raconteur—was of his entertaining a leading Irish surgeon who was attending a conference in London. At the week-end he suggested an afternoon at a race meeting; his visitor said he should like to go, as he had never been to such an event in his life. Following Miles's advice, the visitor backed five winners during the afternoon, and is supposed to have said that he didn't understand why his host found it necessary to labour at surgical work at all.

No account of the career of Ernest Miles would be complete without reference to a lawsuit brought against him in 1930 on the alleged ground of his having left a pair of artery forceps inside the abdomen of a lady upon whom he had operated. The writ was issued more than six years after the alleged tort, so Miles had a perfectly good technical defence, which would have stopped the case at the outset; but he put it very strongly to the Medical Defence Union, by which he was represented, that such a defence might damage his reputation, and it was agreed that it should be waived and the case conducted on the ground that the forceps had not been left by Miles at all but by another surgeon who had operated on the lady in France. This defence was successful, and Miles had the satisfaction of knowing that a jury did not accept the plaintiff's allegation.

After the death of his first wife, he married in 1944 Miss Janet Mary Loxton; there was no issue of either marriage.

Ernest Miles was a man of dominating personality and an outstanding figure in the world of surgery. The operation with which his name will always be associated was developed on classical lines. Anatomical and pathological studies, followed by careful observation in the operating theatre, formed the basis of his considerable contribution to rectal surgery. He contributed to the medical press many articles on abdominal surgery and proctology. His Lettsomian lectures on cancer of the rectum were published as a monograph in 1926. His final summing up of his classical abdomino-perineal operation appeared as a kind of swan song in the *American Journal of Surgery* in 1939.

Dr. Frank H. Lahey, director of the Lahey Clinic, Boston, writes: On being informed of the death of Mr. Ernest Miles this morning it seemed to me that on behalf of the American surgeons who have learned so much from him I should write you expressing for them their deep sorrow. Mr. Miles's name will for ever be linked with the radical operation for abdomino-sacral removal of the rectum. We in America feel that it was he who, for us, put his procedure, which has done so much for so many people, upon a sound basis. Mr. Miles was a gracious host, a stimulating teacher, and I will personally miss him greatly, as will his many friends all over the world.

Mr. Michael Smyth writes: May I add a few remarks to the obituary notice which appeared in *The Times* of Sept. 25. At the zenith of his powers Miles was a world figure in abdominal surgery, particularly in the surgery of the large intestine and rectum. This was not merely because of his great skill as a surgeon, but also because of his outstanding researches in the spread of cancer of these organs. These researches were afterwards embodied in the Lettsomian lectures which he delivered to the Medical Society of London, and from them he evolved the

operation (abdomino-perineal) which is generally known by his name, and which revolutionized this branch of surgery. Although his name is connected with other operations this particular one brought him fame and honorary fellowships from many countries, the last to arrive coming from Greece only a few weeks ago. In the early twenties the Royal Cancer Hospital, where Miles did most of his work, was the Mecca of surgeons who were interested in diseases of the large intestine. There Miles had collected a team of brilliant young men who made their mark afterwards, and some of whom, alas, have predeceased him—Cecil Joll, Jocelyn Swan, and Cecil Rowntree. To see Miles at work with his assistants was to see British surgery at its best. There was a calm, unhurried atmosphere about the theatre, and the leisurely manner in which he went about his work made the whole performance seem at first somewhat slow. This was deceptive, of course, for there was an economy of movement and an effortless ease which only skill and experience could bring about. There was no delay, no hitch, everything looked simple, and the operation moved on quietly to its close. A glance at the clock showed that it had all taken place in an incredibly short space of time—in fact, as Lord Moynihan remarked, "the clock stood still." And after it all there was the chat about the operation, the cup of tea and the cigarette—all very friendly, for Miles was the most approachable of all men, and was kindness itself to visiting surgeons and students. The other hospital to which Miles devoted much of his time was the Gordon. Here some of his greatest work was done. The hospital at first was only a collection of private houses, and poor ones at that, but he and the chairman of the hospital, Capt. Reginald Corfield, worked for years to obtain better housing and to improve conditions for the patients. Eventually their efforts were rewarded when Mr. John Dewar came to their aid, but it is sad to think that Miles had the opportunity of working for only a short time in the magnificent new building they created.

In his youth he was a fine sportsman, excelling particularly at tennis, and he was known to have defeated the reigning tennis champion at tournaments on two occasions. In later years for recreation he indulged in golf, but his chief relaxation was racing. Nothing pleased him more than to entertain his colleagues and friends in his box at Ascot. A story which amused him greatly was that of a distinguished patron of the turf who bade his trainer good-bye, saying that he was about to undergo a big abdominal operation by Ernest Miles. The trainer, who had already undergone an operation by Miles, shook him warmly by the hand and said, "Have no fear, 'milord,' you are home and dried." Of all the honours which came his way there were a few in which he took especial pleasure. The honorary fellowship of the Royal College of Surgeons in Ireland appealed to him, for on his mother's side he was of Irish descent, and some of his ancestors had served with Wellington in the Peninsula. The other tribute which pleased him greatly was on the occasion of his last birthday when there arrived a present and a letter signed by the members of the staff of St. Mark's Hospital, "wishing him every happiness in his retirement, acknowledging him as a great friend and a trusted leader in their specialty." In the past few years his health had deteriorated, but he had the great good fortune of being tended and nursed by his devoted wife, herself well known in the surgical world. A great surgeon has gone, and all of us regret the passing of a great gentleman.

Dr. Cuthbert Dukes writes: When planning an operation for the eradication of any form of malignant disease the surgeon has first to take stock of all possible paths of lymphatic spread. This was accomplished for the rectum by the pioneer work of Mr. Ernest Miles. He gave a detailed description of the rectal lymphatics, describing them as arranged in three groups—intramural, intermediary, and extramural. He pointed out that the main direction of lymphatic drainage was upwards by efferents accompanying the superior haemorrhoidal vessels to drain into lymphatic glands along the main trunk of the superior haemorrhoidal artery and beyond this to the inferior mesenteric and aortic glands. Mr. Ernest Miles planned the abdomino-perineal operation in 1906 and began to employ it in the following year. He took this step because he was convinced that the tissues of the upward zone of spread lay beyond the reach of any operation carried out solely from the perineum. He pointed out that when the perineal route is employed it is seldom possible to reach the glands situated above the bifurcation of the superior haemorrhoidal vessels, yet glandular spread may have extended higher than this. The chief merit of the abdomino-perineal operation (and similar combined operations such as the perineo-abdominal and synchronous combined operation) is that they permit the removal of glands at a higher level than is possible by perineal excision. The new operation introduced by Miles forty years ago extended the scope of surgery in the treatment of rectal cancer and brought a prospect of cure to some patients who could not have been cured by earlier surgical procedures.

Mr. A. Lawrence Abel writes: With the passing of Ernest Miles, British surgery loses one of the giants of the first half of this century, and I lose one who has been my surgical father for more than half that time. He performed his first abdomino-perineal operation for cancer of the rectum more than forty years ago, and survived one of his earliest cases by a few months. The Miles operation was soon known throughout the world, and has stood the test of time; to-day, with little or no modification, it is the operation of choice for rectal cancer in the vast majority of surgical centres. Before the first and between the two world wars few of the leading surgeons of the world failed to visit either the Royal Cancer Hospital or the Gordon Hospital to see him work, and Moynihan, Stiles, and the Mayo brothers were among his numerous friends and admirers. So long as cancer of the rectum can be cured only by the surgeon, Miles's name will be honoured for the pioneer work he did; for the firm foundation of pathology and splendid superstructure of finished technique which he has bequeathed to humanity. He has also left us the operation of recto-sigmoidectomy for complete procidentia of the rectum, and a classic work on fistula which well repays reading at frequent intervals. For many years he was the only leading British surgeon to have two major operations named after him. He loved life, men, and horses, a good meal, good company, and a merry story. His annual box at Ascot was a joyous institution for friends and old patients, who so often became his friends. I have seen as many as seven men whose rectums he had removed enjoying his hospitality together, not knowing what the others owed to their host. Our sympathies go out to his wife and we deplore his loss, appreciating all we owe to a staunch friend and valiant surgical pathfinder.

J. C. BRIDGE, C.B.E., F.R.C.S.Ed., D.P.H.

Dr. John Crosthwaite Bridge, consulting medical officer to Imperial Chemical Industries, Limited, and formerly H.M. Senior Medical Inspector of Factories, died at his home in Worthing on Sept. 27.

He was born on June 5, 1877, the second son of the Rev. James Henry Bridge, was educated at Carlisle Grammar School, and received his medical training at the Middlesex Hospital, where he gained an entrance exhibition. He qualified in 1902 and subsequently was admitted F.R.C.S.Ed. in 1910 and M.R.C.P.Ed. in 1920. He also read for the Bar and was called from the Middle Temple in 1913. He soon interested himself in preventive medicine, taking his D.P.H. at Cambridge in 1906. He became a pioneer in the medical inspection of school-children in Dunfermline, then in Devonport, and later as medical officer of health and school medical officer of Breconshire. He entered the Home Office in January, 1914, under the late Sir Thomas Legge, as H.M. Medical Inspector of Factories, retiring in 1942.

Here was work which suited his diverse talents and many interests. Inspired as he could not fail to be by Sir Thomas Legge, whom he succeeded as Senior Medical Inspector of Factories in 1927, his contribution to the progress of industrial medicine was far-reaching in a remarkably wide field. He set out to understand and really know industrial processes. With this understanding, his basic knowledge of medicine and of the law, and a critical judgment, he aided progress far more surely than he believed. As with all outstanding men, his technique was enviable, and his junior colleagues were often amazed at the uncanny way in which he tracked down and identified among the intricate processes of a large factory the precise cause of some complaint. He took a simple pleasure

in doing this when taking out a new colleague, implanting thus a firm desire to emulate this impressive achievement. Afterwards he would generously explain the why and wherefore. Needless to say, the occupiers of factories were equally impressed, particularly as he rarely made a note during a visit.

One of his duties was to advise the Home Office on medical aspects of the law relating to workmen's compensation, and here, too, he left his mark on legislation. He was a member of the Departmental Committee of 1930 on extensions to the schedule of industrial diseases and of another Departmental Committee in 1935 on certain questions arising under the Workmen's Compensation Act. He had a flair for recognizing and assessing the potentialities of industrial processes in relation to health hazards, and in such cases was at pains to identify new occupational diseases and to ensure their consideration with a view to their inclusion in the schedule of diseases subject to compensation. He was chairman of the Departmental Committee on medical arrangements for the diagnosis of silicosis in 1928, a member of the Industrial Health Research Board, of the Industrial Pulmonary Diseases Committee, and of the Committee on Industrial Solvents of the Medical Research Council, and of many other committees, such as the Ministry of Health's committees on the causes and prevention of blindness (1922), on cancer (1928–35), on ethyl petrol (1928), and he served also on the advisory Departmental Committee on anthrax (1935–46), and on the Correspondence Committee on Industrial Hygiene of the International Labour Office from 1927. He was vice-president of the Section of Occupational Diseases at the Annual Meeting of the B.M.A. in Manchester in 1929 and of the Section of Public Health at the Centenary Meeting in 1932. After retirement from the factory department he became chairman of the Association of Industrial Medical Officers.

He had an endearing grace of manner and a sensitive mastery of the spoken word, but could be stern in reproof, and he was intolerant of carelessness. These traits, with his sane and balanced outlook, had an abiding influence on his junior colleagues, to their great advantage. He was much interested in the Whitley Council movement in the Civil Service and had a great influence on the development of the Institution of Professional Civil Servants, of which he was chairman 1922–6 and again in 1930–1. Thereafter his advice and help continued to be freely available to, and was welcomed by, the institution. He was sensitive and inherently shy, but could make a speech full of logic and keen judgment. In the main, however, he chose to reserve his gifts for his internal departmental work and his colleagues rather than seek publicity in writing and speaking. He built something which will endure both in the hearts of the men and women he taught so well and in the law designed to protect the industrial worker.

Dr. Bridge was made a C.B.E. in 1934 and appointed honorary physician to the King in 1937. He married first in 1904 Bessie (died 1933), daughter of Gateward Coleridge Davis, and in 1935 Joan Phyllis, daughter of James S. Hann, who survives him with one daughter.

C. P. LAPAGE, M.D., F.R.C.P.

Charles Paget Lapage, one of the best-known paediatricians in Manchester, died on Sept. 23 at the age of 68. He was the son of Dr. Charles Clement Lapage, a Cambridge graduate in practice at Nantwich. He was educated at Epsom College and at Owens College, graduating M.B., Ch.B. at Manchester in 1902. Early in his career he was interested in the diseases of children, and he won the John Henry Agnew prize and the Henry Ashby Memorial Scholarship for the study of this subject. As a student he was a notable long-distance runner, and a useful forward in the Rugby team. After graduating he was appointed house-surgeon at the Manchester Royal Infirmary. Later he was resident medical officer to the Royal Manchester Children's Hospital at Pendlebury, and then to the special wards at St. Mary's Hospitals. His teaching experience began when he was medical registrar to the Royal Infirmary and medical tutor at the Hulme hall of residence. By this time he had made up his mind to specialize in paediatrics and he became medical officer to the Gartside Street out-patient branch of the Children's Hospital. This was in 1905, the year in which he was awarded the M.D. with commendation for a thesis on feeble-minded children.

After the death of Dr. Henry Ashby he was appointed honorary physician to the Children's Hospital and subsequently he was on the honorary staff of St. Mary's Hospitals and in charge of the children's wards. Other honorary appointments he held were in connexion with the Warehousemen and Clerks Schools, the Princess Christian College for Nurses, the Royal Albert Institution for the Feeble-Minded, the Manchester Mothers' Guild, and the Royal Schools for the Deaf at Old Trafford. He was particularly interested in mental incapacity in children, and he wrote a book on feeble-mindedness in children in 1911; a second edition appeared in 1920. He had taken the M.R.C.P. in 1908 and he was elected F.R.C.P. in 1922.

Before the 1914–18 war Dr. Lapage was a captain in the University Territorial Training Corps and he followed Sir Thomas Holland as its commanding officer. As a major in the R.A.M.C. he went abroad with the 57th General Hospital during the war and was mentioned in dispatches for his services. At the University he acted first as a demonstrator in operative surgery, then as lecturer on school hygiene, later as lecturer and finally reader in diseases of children, which last post he held until a chair of child health was created in May of this year.

Dr. Lapage was president for a session of the Manchester Medical Society and of the Section of Diseases of Children of the Royal Society of Medicine. He was a member of the British Paediatric Association, and in 1929 he was president and in 1932 vice-president of the Section of Diseases of Children at the B.M.A. annual meetings. He published many articles in the medical press and contributed the section on functional nervous disorders in childhood to Parsons and Barling's *Textbook on Diseases of Children*. He was also interested in asthma in childhood and in minor digestive disorders. In later years he took a great interest in mountaineering and he was an active member of the University Climbing Club, regularly attending its hill meetings.

Dr. Lapage was always more successful as a clinician than as a teacher, and as a writer than as a lecturer. He was fascinated by any difficult clinical problem, and he wrote well, but he never pretended to enjoy any lectures that he had to give. His outlook was conservative, though he was always ready to make a cautious trial of a new method or a new technique. When it was first proposed to use non-medical speech therapists at a special out-patient clinic attached to the Children's Hospital he was opposed to the idea. Once the scheme was in being, however, and it was one of the first of its kind in this country, he watched it carefully and, convinced of its merits, helped to make it a success. Students as a group thought him aloof and difficult. He would never "talk down" to them and he refused to oversimplify any problem in diagnosis or treatment. Yet to the individual student in the wards or the out-patient department he was most approachable and could be kindness itself.

H. T. A. writes: As a colleague for many years I would like to add my appreciation of Lapage's work, especially at the Royal Manchester Children's Hospital, Pendlebury, where he had been on the staff for nearly forty years. The medical and lay members of this hospital have always worked together in the most harmonious way and Lapage did much to foster this feeling. Apart from his work Lapage was a unique character, and one will always remember his arrival at hospital in an airman's helmet as a precaution against draught in his car and his remarkable upright quick walk down the corridor to his ward, hugging a sheaf of papers. Lapage was one of the original members of the British Paediatric Society, and I do not think he ever missed a meeting. He much enjoyed these meetings and took part in many discussions. He was essentially a family man and his wife accompanied him when he went for holidays in the Lake District, where he loved to climb and walk. His colleagues will all extend their deepest sympathy to his wife and family.

W. S. BAINBRIDGE, A.M., Sc.D., M.D.

Dr. W. S. Bainbridge, the well-known American surgeon and a pioneer of cancer research, died in Connecticut on Sept. 22 at the age of 77.

William Seaman Bainbridge, son of the Rev. W. F. Bainbridge, of Providence, Rhode Island, was educated at Mohegan

Lake School, Peekskill, New York, and at Columbia University. He was granted the degree of M.D. in 1893, and spent several years in postgraduate study in America and abroad. He was appointed professor of operative gynaecology at the New York Postgraduate Medical School in 1900, and three years later he was also appointed surgeon to the New York Skin and Cancer Hospital. In 1906 he left the Postgraduate School for the chair of surgery at the New York Polyclinic Medical School and Hospital. He acted as consulting surgeon to the Manhattan State Hospital, and was attached to other hospitals in and around New York. During the 1914–18 war he was for some time an operating surgeon in the U.S.S. *George Washington*, and later he served in the Surgeon-General's office. In 1941 he was sent on a special mission by the Navy Department to the Central and South American Republics, and he also represented the United States at the conference at Basle this year of the International Committee of Military Medicine.

His great interest in cancer received recognition in 1906 when he was honorary president of the first International Congress for the Study of Tumours and Cancers. This first congress was held at Heidelberg. He was constantly in touch with research workers in many other countries, and he accumulated a great deal of material on cancer which served as a basis for what was perhaps his most important book, *The Cancer Problem*. This first appeared in 1914 and was later translated into five languages. In this book Dr. Bainbridge tried to give what he himself called "a clear, concise, comprehensive, and available résumé of the world's work with reference to cancer, its history, distribution, aetiology, diagnosis, possibility of prevention, and treatment." His survey ranged from ancient Greece to the cancer research laboratories of the Middlesex Hospital, and from South African herbal remedies to current quackery. It was a remarkable book which ended with a plea for the better education of the profession and the public in matters relating to cancer, and it served a most useful purpose in attracting attention to the subject to which Dr. Bainbridge himself devoted his long life.

Dr. John Murdoch died suddenly at his home on Aug. 22 at the age of 68. He graduated at Dublin in 1905 and was in general practice first at Market Harborough and later at Thornton Heath and Croydon. During the 1914–18 war he was medical officer at the Ingram Road War Hospital. His son, Dr. John Murdoch, died on active service in East Africa in 1943.

Dr. George Herbert Steele died in hospital on Sept. 1 at the age of 80. Dr. Steele was a student of Guy's Hospital and qualified in 1898. He held house appointments at hospitals in Birkenhead, Windsor, and Northampton before starting in general practice near Hereford. After the 1914–18 war he moved to Kempsey, near Worcester, and there he remained in practice until his retirement in July, 1946.

The Services

Surgeon Rear-Admiral O. D. Brownfield, O.B.E., R.N., has been appointed an Honorary Physician to the King in succession to Surgeon Rear-Admiral H. M. Whelan, R.N., deceased.

Surgeon Captain C. C. Elliott, D.S.C., V.R.D., R.N.V.R., has been appointed an Honorary Physician to the King in succession to Surgeon Captain H. O. Martin, V.R.D., R.N.V.R., who has been placed on the Retired List.

Lieutenant-Colonel R. Coyte, O.B.E., Majors (Honorary Lieutenant-Colonels) C. A. Ferguson and W. Slater Brown, and Captain (Honorary Major) W. D. Richardson, M.B.E., R.A.M.C., have been awarded the Efficiency Decoration of the Territorial Army.

The Prince Regent of Belgium has conferred the following decorations in recognition of distinguished services in the cause of the Allies:

Officer of the Order of Leopold with Palm, Croix de Guerre 1940 with Palm.—Colonel J. H. C. Walker, late R.A.M.C., and Colonel (temporary) D. Bluett, O.B.E., R.A.M.C.

Chevalier of the Order of Leopold II with Palm, Croix de Guerre 1940 with Palm.—Colonel (acting) E. H. P. Lassen, D.S.O., Lieutenant-Colonel (temporary) J. Shields, Majors (temporary) R. F. Lawrence and G. A. Stephen, Captains R. F. Clark, G. L. K. Crampton, R. de Sennevilie, G. Gregg, and L. G. J. Pitt-Payne, and Lieutenant H. Skinner, R.A.M.C.

Medico-Legal

OVERDOSE OF AMETHOCAINE

[From Our Medico-Legal Correspondent]

A patient at Crumpsall Hospital died from an overdose of amethocaine hydrochloride. At the inquest before Mr. G. Jessel Rycroft, the Manchester City coroner, the surgeon said[1] that he had read over the shoulder of the theatre sister the label of a large ampoule and had not noticed that it described a 1% solution. The theatre sister said that she had thought that the ampoule contained only one dose of a 0.1% solution. Otherwise, "multi-dose bottles" were normally used. The coroner remarked that it might well have been the duty of the surgeon to be certain of the writing on the label of the ampoule. If a small ampoule had been used, as was usual, the need for dilution of its contents would have been obvious, but the hospital dispensary had been obliged to use a large ampoule because there were no small ampoules or multi-dose bottles available. He pointed to the need for clearer labelling.

[1] *Manchester Guardian*, Aug. 26.

Universities and Colleges

UNIVERSITY OF LONDON

Peter Byers Ascroft, M.B.E., M.S., F.R.C.S., has been appointed to the University Chair of Surgery tenable at Middlesex Hospital Medical School, from July 1 last.

Prof. William James Hamilton, M.Sc., M.D., D.Sc., has been appointed to the University Chair of Anatomy tenable at Charing Cross Hospital Medical School, from Oct. 1.

Graham William Hayward, M.D., F.R.C.P., has been appointed to the University Readership in Medicine tenable at St. Bartholomew's Hospital Medical College from Oct. 1.

UNIVERSITY OF LEEDS

The inaugural lecture of the Faculty of Medicine of the University will be given by Prof. Geoffrey Jefferson, C.B.E., M.S., F.R.C.S., F.R.S., professor of neurosurgery in the University of Manchester, in the Riley-Smith Hall of the University Union on Thursday, Oct. 16, at 3.30 p.m. His subject is "Scepsis Scientifica." Members of the medical profession are invited to be present.

UNIVERSITY OF ABERDEEN

At a Graduation Ceremony on Sept. 17 the following medical degrees were conferred:

M.D.—[1] A. A. Harper.

Ch.M.—[2] P. H. Theron.

M.B., Ch.B.—[3] J. B. Johnston, [3]A. J. Watson, Hilda Aitken, W. A. Anderson, Dorothy E. Barron, I. C. Brannen, A. W. Bruce, Nan H. Bruce, W. A. Cramond, I. M. Cran, R. S. Forrester, D. J. Gill, Margaret S. Hamilton, Elizabeth C. Hendrie, J. Hendry, A. Hunter, A. F. Johnstone, Moyra S. M. Kemp, Una Lawrie, K. M. Leighton, Kathleen J. Logan, Kathleen McCombie, A. D. Macdonald, D. McIntosh, A. M. Mackay, J. F. Mackie, Bertine J. C. Mackintosh, P. Marioni, Lorna C. Milne, D. S. Munro, Mary L. Price, W. I. Reid, G. L. Ritchie, A. McQ. Robertson, G. Ross, J. Savy, Mary A. Shirreffs, D. W. C. Smith, D. T. Sutherland, A. S. Taylor, A. D. Thom, W. G. Thomson, A. C. Turnbull, J. H. Warrack, Elizabeth L. Watson, K. C. Watson, J. N. Wattie, Grace A. M. Webster, Agnes C. M. Williamson, Catherine J. J. Wilson, Margaret C. Wood.

D.P.H.—A. P. Buchan, R. W. Farquhar, F. S. A. Forbes, Mary M. Martin, C. C. Wright.

[1] Awarded Highest Honours for Thesis. [2] Awarded Honours for Thesis. [3] With second-class Honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

In the list of members of the Board of the Faculty in Dental Surgery of the College, printed in the *Journal* of Aug. 30 (p. 353), Mr. A. C. McLeod should have been described as "Surgeon-Dentist to the King" and *not* "Honorary Dental Surgeon to the King."

ROYAL COLLEGE OF SURGEONS IN IRELAND

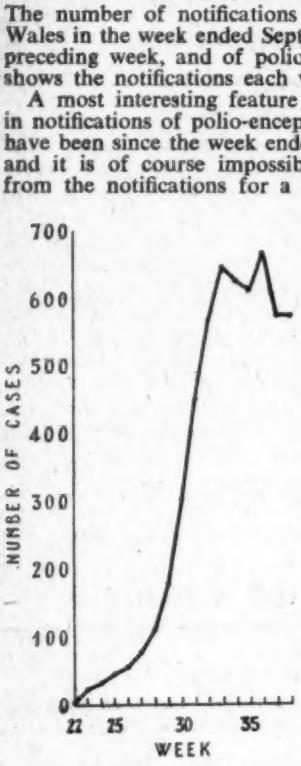
A postgraduate course in surgery will be held at the College and various Dublin hospitals from Monday, Oct. 6, to Saturday, Nov. 29. Attendance will be strictly limited to 30 persons and the fee for the course is £21, but registration may be made for either half of the course at a fee of £10 10s. Applications should be addressed to Prof. N. Rae, D.Sc., Registrar of the College, Dublin.

EPIDEMIOLOGICAL NOTES

Poliomyelitis and Polio-encephalitis

The number of notifications of poliomyelitis in England and Wales in the week ended Sept. 20 was 571, as against 572 in the preceding week, and of polio-encephalitis 23 (42). The graph shows the notifications each week from May 31 to Sept. 20.

A most interesting feature of the returns is the sudden fall in notifications of polio-encephalitis, which are lower than they have been since the week ended July 19. The figures are small, and it is of course impossible to draw any firm conclusions from the notifications for a single week.



The notifications in London fell again 53 (63), and other figures were: Counties—Lancashire 76 (65), Warwickshire 36 (30), Middlesex 31 (32), Yorkshire W.R. 31 (35), Essex 24 (20), Kent 23 (21), Surrey 22 (29), Hants 21 (11), Durham 20 (15), Staffordshire 20 (20); County Boroughs—Birmingham 26 (21), Manchester 16 (16), Leicester 15 (11), Bristol 8 (8), Sheffield 7 (7), and Liverpool 6 (7). The general picture is one of a slight fall in London and little change elsewhere.

In the week ending Sept. 13 the 572 notifications of poliomyelitis were the lowest for five weeks. The disease was still widespread, and only three English counties—Norfolk, Rutland, and Westmorland—did not report a single case. In Wales the notifications were confined to the southern counties; six counties in the north—Anglesey, Caernarvon, Flint, Merioneth, Montgomery, and Radnor—had no notifications. The largest returns among the county boroughs were: Birmingham 21, Manchester 16, Leicester 11, Bristol 8, Liverpool 7, Salford 7, Bradford 7, Sheffield 7, Derby 6, and Leeds 5. In London the largest returns were from the boroughs of Lewisham 7, Wandsworth 7, Lambeth 6, and Shoreditch 6. In the remainder of the country the only large centres of infection were Middlesex, Willesden M.B. 6, and Kent, Bromley M.B. 5.

Neonatal Gastro-enteritis at Rochdale

The Birch Hill Maternity Home at Rochdale is contained in a separate block of the hospital and is divided into two floors with separate staff and independent equipment. The top floor only was affected. This floor consists of a private wing with six single wards (1–6); one two-bedded (7–8); and wards with four beds (9–12), two beds (13–14), three beds (15–17), and eight beds (18–25), together with a common baby nursery and bathroom.

The outbreak began on Aug. 26–7, when a baby 9 days old began vomiting. This was at first regarded as probably due to pyloric stenosis. The appearance of green stools on Aug. 27 and the occurrence of another case on the same day aroused suspicion. The sequence of events is shown in the table.

Briefly, following these first two cases, 13 other cases occurred, and there were in all 7 deaths, although one was probably due in the main to prematurity. The last deaths occurred on Sept. 1. Of these cases, 8 (2 deaths) were breast-fed, 6 (3 deaths) were breast- and artificially fed, and one baby which died was fed by expressed breast milk (Case 6).

Of 14 other children not affected 10 were breast-fed, 2 breast- and artificially fed, and 2 artificially fed. In all but the first case green stools were the first abnormality to be noted, preceded by a few hours of variable malaise and lethargy. Later the stools became loose, and then yellow and watery in the worst cases. Dehydration was rapid and jaundice was present at some stage in most cases. Blood was present in the stools in only one case and mucus in one other case. Both oral and intramuscular penicillin were used, but fatalities occurred so rapidly that assessment of treatment was almost impossible.

Investigation was undertaken by the Rochdale Public Health Laboratory and the Manchester University Laboratory. The only significant organism found was coagulase-positive *Staph. aureus* in the post-mortem material, in the stools of certain survivors, and in the nose and throat of mothers with one exception, and of 8 members of the nursing staff on this floor. Confirmation awaits phage-testing.

The floor was cleared of patients and staff on Sept. 12. It has been cleaned, aired, and redecorated, and was reopened on Sept. 30.

Discussion of Table

In *England and Wales* infectious diseases were less prevalent during the week; the only rises were in the notification of scarlet fever 134 and diphtheria 17, while decreases were recorded for measles 409, whooping-cough 164, acute poliomyelitis 90, paratyphoid fever 15, and cerebrospinal fever 11.

A small rise in the incidence of scarlet fever occurred in most areas; the largest increase was 31 in Yorkshire West Riding. An outbreak of diphtheria was reported from Warwickshire, Birmingham C.B., where the notifications rose from 2 to 17. In all other areas there was practically no change in the trend of diphtheria.

Relatively substantial falls in the notifications of measles were recorded in most areas of the country. The local trends of whooping-cough fluctuated; the decreased incidence was mainly contributed by Lancashire, London, and the South-eastern counties, while the largest increases were those of Essex 38, Warwickshire 30, and Yorkshire West Riding 25.

The outbreak of paratyphoid in Bedfordshire subsided; only 3 cases were notified during the week. The chief centre of dysentery was Lancashire 19 (Liverpool C.B. 10 and Prestwich M.B. 5).

In *Scotland* there were rises in the notifications of acute primary pneumonia 46 and scarlet fever 44, while falls were recorded for acute poliomyelitis 19, and cerebrospinal fever 8. The rise in the incidence of pneumonia occurred throughout the western area. The only notable exception to the small general decline in poliomyelitis was a rise of 10 in Ayr county.

In *Eire* the chief feature of the returns was an increase of 24 in the notifications of diarrhoea and enteritis. In Dublin C.B. 109 of the 120 cases were notified; the other 11 cases involved 5 registration areas.

Recent Birth-rate Trends in Europe

In the *Monthly Supplement* for August to the Weekly Epidemiological Record of the United Nations World Health Organization the trend of the birth rate, between 1911 and 1946, for European countries has been reviewed. Broadly, the course of the birth rate for all European countries has been the same—a very steep fall during the war of 1914–18, followed by a large increase in 1920 with a subsequent steady decline until 1941, when the rate began to rise again. The only notable exception to the general trend was Germany, where the rate rose during 1934–9 and then fell in 1942. There have been minor changes in the relative positions of some countries, but the changes have been small and, generally, the countries with the lowest rates in the pre-war period had the lowest rates in 1946.

Week Ending September 20

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 805, whooping-cough 1,378, diphtheria 189, measles 1,066, acute pneumonia 252, cerebrospinal fever 35, acute poliomyelitis 571, acute polio-encephalitis 23, dysentery 100, paratyphoid 23, and typhoid 16.

Case	Date of Birth	Bed No.	Date of Onset	Symptoms	Date of Death	Feeding	Remarks
1 HO. ..	Aug. 16	3	Aug. 26–27	Vomiting and diarrhoea	Aug. 29	Breast till Aug. 26	Bronchial pneumonia
2 HA. ..	,, 22	11	,, 27	Diarrhoea	—	Breast and comp.	Renal damage
3 O. ..	,, 23	2	,, 28	,,	Aug. 30	Artificial and breast	P.M.—Purulent ureteritis
4 W.1 ..	,, 22	20	,, 29	,,	,, 30	Breast and comp.	Prematurity
5 MU. ..	,, 23	17	,, 30	,,	,, 31	Breast	
6 MA. ..	,, 22	19	,, 30	,,	,, 31	Breast (expressed)	
7 W.2 ..	,, 22	20	,, 31	,,	Sept. 1	Breast and comp.	P.M.—Purulent bronchitis
8 S.	,, 20	1	,, 31	,,	—	Breast	
9 T.	,, 26	5	,, 31	,,	—	,,	
10 B. ..	,, 27	22	,, 31	,,	—	,,	Renal damage
11 MAU. ..	,, 29	6	Sept. 1	,,	—	,,	
12 SH. ..	,, 19	7	,, 1	,,	Sept. 1 (at home)	Breast and comp.	Home Sept. 1
13 BA. ..	,, 22	'14	,, 1 (at home)	,,	—	Breast	Discharged Aug. 30
14 D. ..	,, 13	23	,, 1	,,	—	Breast and comp.	Discharged Aug. 30
15 WA. ..	,, 20	24	,, 2	,,	—	Breast	Discharged Aug. 30

No. 37

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 13.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947 (a)	(b)	(c)	(d)	(e)	1946 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	25	—	26	1	2	28	4	19	1	—
Deaths		—	—				—	2		
Diphtheria	162	11	48	10	6	255	22	82	35	21
Deaths	1	—	—	—	1	5	—	2	2	—
Dysentery	69	6	17	—	—	68	17	42	1	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	1	—	—	—	—
Deaths		—					—			
Erysipelas			23	6	—			38	6	5
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				120					55	
Deaths	80	4	24	9	3	54	3	10	11	5
Measles*	1,038	36	51	113	6	1,213	78	75	19	6
Deaths	1	—	—	2	—	3	1	—	1	—
Ophthalmia neonatorum	63	7	5	1	—	75	7	10	—	—
Deaths										
Paratyphoid fever	14	1	1(A) 2(B)	—	—	33	—	14(B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	203	15	1	2	2	284	21	3	2	1
Deaths (from influenza)†	4	2	—	—	—	2	—	—	—	—
Pneumonia, primary			142	20				136	15	
Deaths		15		13	9		22		3	5
Polio-encephalitis, acute	42	3				1	—			
Deaths		—					—			
Poliomyelitis, acute	572	63	155	11	12	22	3	—	3	2
Deaths		2					—			
Puerperal fever		2	19		—		2	10		—
Deaths										
Puerperal pyrexia‡	124	7	9	—	2	100	12	6	1	—
Deaths		—					1			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	674	54	157	25	28	791	68	157	34	25
Deaths	1	—	—	1	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	13	1	4	1	4	17	2	6	3	2
Deaths	—	—	—	—	2	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,519	145	67	78	8	1,744	142	119	30	30
Deaths	6	—	1	1	—	10	1	2	—	1
Deaths (0–1 year)	316	37	63	31	17	359	43	53	27	12
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,678	558	490	134	123	3,793	603	561	151	99
Annual death rate (per 1,000 persons living)			10·2	8·5				12·3	9·7	
Live births	8,266	1279	949	447	242	8,953	1339	1,028	437	276
Annual rate per 1,000 persons living			19.1	28·2				20·7	28·0	
Stillbirths	210	24	26			243	37	36		
Rate per 1,000 total births (including stillborn)			27					34		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Medical News

Sir Andrew Davidson's Visit to America

Sir Andrew Davidson, Chief Medical Officer, Department of Health for Scotland, has left for America, where, on the invitation of the president and council of the American Public Health Association, he is to address the association's annual conference at Atlantic City on Oct. 7 and 8. Sir Andrew is also to visit Canada, where, on Oct. 14, he will address a conference on rheumatism and arthritis convened by the Department of Health and Welfare, Ottawa. He will return at the beginning of November.

To Lecture in Hungary

Prof. W. C. W. Nixon, Professor and Director at the Obstetric Clinic of University College Hospital, London, left Britain on Oct. 1 to lecture in Hungary, under the auspices of the British Council, on analgesia and anaesthesia in obstetrics, the development of maternity and child welfare services in Great Britain, and antenatal and post-natal care. He will also demonstrate surgical operations at Budapest.

Hospitals for Streptomycin Treatment

The following hospitals should be added to those listed (Sept. 6, p. 399) at which cases of tuberculous meningitis and miliary tuberculosis may be received for treatment with streptomycin:

London.—Hospital for Sick Children, Great Ormond Street, W.C.1.

Birmingham.—The Queen Elizabeth Hospital (which takes adults; children are admitted to the Children's Hospital).

The total number of beds for which streptomycin treatment is available for cases of tuberculous meningitis and miliary tuberculosis in the United Kingdom is still 150, the number for which supplies of the drug are at present available.

Penicillin Research

Miss W. G. Keepe, B.Sc., who has been engaged on penicillin research for the past year, has been appointed to the Wellcome Pharmaceutical Research Fellowship for the academic year beginning in October. She will carry out her research at Manchester University.

Medical Historian Honoured

The King has granted to Dr. E. Ashworth Underwood, Director of the Wellcome Historical Medical Museum and Honorary Lecturer in the University of London (University College), permission to wear the Cross of the Chevalier of the Legion of Honour, which has been conferred on him by the President of the French Republic.

London Hospital Old Students' Dinner

The London Hospital Old Students' Dinner and Course will not be held this year on account of catering restrictions.

Wills

Dr. John Robinson Harper, C.B.E., Barnstaple, Devon, who died on April 30, left £20,207; Dr. Samuel Barratt Browning, of Birmingham, £24,403; and Dr. Prideaux George Selby, O.B.E., of Lynsted, Kent, £15,178.

COMING EVENTS

Whipps Cross Hospital Medical Society

The next meeting of the Whipps Cross Hospital Medical Society will be held at the hospital to-day (Friday, Oct. 3), at 8.30 p.m., when Mr. Alan Todd will deliver a lecture on "Cases Illustrating Certain Orthopaedic General Principles."

National Hospital

An introductory lecture for the autumn term at the National Hospital, Queen Square, Medical School will be given by Dr. Gordon Holmes, F.R.S., on "Co-ordination of Movement and Its Disorders" on Monday, Oct. 6, at 3.30 p.m. in the lecture theatre. The lecture is open free to postgraduate students.

London Jewish Hospital Medical Society

Dr. Hugh Gainsborough, F.R.C.P., will deliver the presidential address before the London Jewish Hospital Medical Society at Woburn House, Woburn Square, London, W.C., on Thursday, Oct. 9, at 3 p.m.

Charing Cross Hospital Medical School

In view of the present crisis and the restrictions on rationing, it has been decided not to hold the annual dinner of Charing Cross Hospital Medical School this year. The prize-giving will take place in the council room of the Hospital on Tuesday, Oct. 14, at 3.45 p.m., when the Earl of Donoughmore will present the prizes.

Conference on Food and Drink Infections

The Central Council for Health Education (Tavistock House (North), Tavistock Square, London, W.C.) has arranged a conference of representatives of local authorities in England, Wales, and Northern Ireland and of the food-handling industry on food and drink infections to be held at Friends' House, Euston Road, London, N.W., on Thursday, Oct. 9, at 10 a.m. The chairman, Lord Woolton, will deliver the opening address and a message will be read from the Rt. Hon. Aneurin Bevan, Minister of Health; Sir William Savage will speak on "The Problem"; Prof. G. S. Wilson on "The Nature of the Food and Drink Infections"; Mr. L. H. Lampitt, D.Sc., on "Present-day Practice and Problems"; Dr. Robert Cruickshank on "Food and Drink Hygiene in the U.S.A."; and Dr. Robert Sutherland on "Health Education and the Food and Drink Infections." A general discussion will follow. There will be an exhibition relating to food and drink infections on view in Friends' House on Oct. 9, from 9 a.m. to 6 p.m., and on Oct. 10 visits to a bacteriological laboratory and to food-handling establishments in London will be arranged. Dr. Robert Sutherland, medical adviser and secretary of the Central Council for Health Education, and Dr. Robert Cruickshank, director of the Central Public Health Laboratory, will be present at the Press conference on Monday, Oct. 6, at 11.30 a.m. at B.M.A. House, Tavistock Square, London, W.C., to answer questions of a technical nature.

Royal Institute of Public Health and Hygiene

The Royal Institute of Public Health and Hygiene has arranged a series of lectures to be delivered in the Lecture Hall of the Institute, 28, Portland Place, W., on the following Wednesdays at 3.30 p.m.: Oct. 15, Prof. H. J. Seddon, D.M., F.R.C.S., Infantile Paralysis (illustrated); Oct. 22, Mr. J. Lyle Cameron, M.D., F.R.C.S., The Care of the Mother (illustrated); Oct. 29, Dr. W. G. S. Pepper, The Doctor in Industry (illustrated); Nov. 5, Mr. Arthur Ling, The Health Factor in Town Planning (illustrated); Nov. 12, Prof. W. C. W. Nixon, M.D., F.R.C.S., Diet in Pregnancy (illustrated); Nov. 19, Mr. L. Z. Cosin, F.R.C.S., Modern Methods in the Care of the Aged (illustrated); Nov. 26, Dr. Mary D. Sheridan, Hygiene in the Nursery and Playroom (illustrated). Admission to the lectures is free and applications for reservation of seats should be made to the secretary of the Institute.

SOCIETIES AND LECTURES

ROYAL SOCIETY OF MEDICINE

Section of Epidemiology and State Medicine.—Monday, Oct. 6, 4.30 p.m. Papers by Mr. K. I. Nissen: Poliomyelitis in St. Helena, 1945; Dr. L. M. Laurent: Acute Meningo-encephalitis of Undetermined Virus Aetiology. A discussion will be opened by Dr. Douglas McAlpine with "Some Observations on the 1947 Outbreak of Acute Poliomyelitis."

Section of Orthopaedics.—Tuesday, Oct. 7, 8.30 p.m. Presidential Address by Mr. George Perkins: Flat-foot or Instability of the Longitudinal Arch. A discussion will follow.

Section of Physical Medicine.—Wednesday, Oct. 8, 4.30 p.m. Presidential Address by Dr. W. S. Tegner: Treatment of Rheumatoid Arthritis.

Section of Ophthalmology.—Thursday, Oct. 9, 5 p.m. (Cases at 4.30 p.m.) Paper by Dr. H. Arruga (Barcelona): Considerations on the Treatment of Detachment of the Retina.

Clinical Section.—Friday, Oct. 10, 5 p.m. (Cases at 4 p.m.)

BRITISH INSTITUTE OF PHILOSOPHY.—At University Hall, 14, Gordon Square, London, W.C., Friday, Oct. 10, 5.15 p.m. Prof. H. B. Acton: Morals and Politics in Contemporary Society.

CHADWICK TRUST.—At 26, Portland Place, W., Tuesday, Oct. 7, 2.30 p.m. Brig. A. E. Richmond: Positive Health—Its Attainment in the Soldier, and the Army's Contribution to it in the Civilian.

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330, Gray's Inn Road, W.C.—Friday, Oct. 10, 4.30 p.m. Annual Address by Sir Francis Fraser: The Training of Specialists: the Place of Postgraduate Institutes.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—At Leeds General Infirmary, Friday, Oct. 10, 8.30 p.m. Dr. John T. Ingram: Sir Jonathan Hutchinson, Dermatologist.

LONDON: UNIVERSITY COLLEGE, Gower Street, W.C.—Tuesday, Oct. 7, 5.15 p.m. Prof. J. Z. Young, F.R.S.: Structure of Peripheral Nerve and of Nerve Endings. Wednesday, Oct. 8, 5 p.m. Dr. M. H. Pirenne: Physiological Mechanisms of Vision.

ROYAL DENTAL HOSPITAL OF LONDON AND LONDON SCHOOL OF DENTAL SURGERY (UNIVERSITY OF LONDON), 32, Leicester Square, W.C.—Saturday, Oct. 11, 3 p.m. Prize Distribution by Sir Ernest Graham-Little and Conversazione.

SOCIALIST MEDICAL ASSOCIATION.—At Denison House, 296, Vauxhall Bridge Road, S.W., Thursday, Oct. 9, 7.30 p.m. Dr. Marc Daniels: Health Services in Post-war Poland.

POSTGRADUATE DIARY

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—Wednesday, Oct. 8, 8 p.m. Prof. A. Loewenstein: Pathology and Clinical Aspects of Ocular Glassmembranes.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle Street, Leicester Square, W.C.—Tuesday, Oct. 7, 5 p.m. Dr. R. T. Brain: Congenital Abnormalities. Thursday, Oct. 9, 5 p.m. Dr. C. W. McKenny: *X*-ray Technique.

The Fellowship of Medicine announces the following courses: (1) Obstetrics and Gynaecology, at Nuffield Department of Obstetrics and Gynaecology, Radcliffe Infirmary, Oxford, all day from Oct. 21 to 31. (2) Week-end course in Rheumatic Diseases, at Rheumatic Unit, St. Stephen's Hospital, Fulham Road, S.W., all day Saturday and Sunday, Oct. 25 and 26. (3) Week-end course in General Medicine and Surgery, at National Temperance Hospital, Hampstead Road, N.W., all day Saturday and Sunday, Oct. 18 and 19. Full particulars of these courses can be obtained from the Fellowship of Medicine, 1, Wimpole Street, London, W.

The series of neurological and psychiatric demonstrations by Dr. A. Feiling and Dr. D. Curran at St. George's Hospital Medical School resumed on Oct. 2, when Dr. Feiling gave a neurological lecture-demonstration. The series will be continued on Thursdays at 4.30 p.m. and is open to practitioners and senior students without fee.

APPOINTMENTS

Dr. Alan C. Lendrum, Lecturer in Pathology at Glasgow University, has been appointed Professor of Pathology at St. Andrews University and Senior Pathologist and Clinical Pathologist at Dundee Royal Infirmary.

Prof. T. B. Davie, Dean of the Faculty of Medicine and Professor of Applied Pathology at Liverpool University has been appointed Vice-Chancellor of the University of Capetown.

Prof. Davie, who is 59 years old, took his M.B., Ch.B. (with first-class honours) at Liverpool in 1928, proceeding M.D. in 1931. In 1940 he was elected F.R.C.P.

Hugh Llewelyn Glyn Hughes, C.B.E., D.S.O., *M.C.*, M.R.C.S., L.R.C.P., has been appointed Senior Administrative Medical Officer of the South-East Metropolitan Regional Hospital Board.

Hugh Montagu Cameron Macaulay, M.D., D.P.H., has been appointed Senior Administrative Medical Officer to the North-West Metropolitan Regional Hospital Board.

Dr. Macaulay is County Medical Officer of Health and School Medical Officer for Surrey and only recently completed his term of office as Honorary Physician to the King.

Percival V. Pritchard, M.D., F.R.C.P.Ed., F.R.F.P.S., D.P.H., Deputy Medical Officer of Health, St. Pancras, has been appointed County Medical Officer, Antrim, Northern Ireland, and will take up his new post this month.

HUGHES, E. S. R., M.S., F.R.C.S., Temporary Honorary Surgeon, Connaught Hospital, Walthamstow, London, E.

MAHONY, G. H., M.D., M.Ch., F.R.C.S.Ed., F.R.C.O.G., Lieutenant-Colonel, I.M.S. (ret.), Professor in Obstetrics and Gynaecology, Royal College of Medicine, Baghdad, Iraq.

WHITELAW, A. D., M.D., D.P.H., Medical Officer of Health, East Pembrokeshire Combined Districts.

WREXHAM EMERGENCY (COUNTY GENERAL) AND WREXHAM AND EAST DENBIGHSHIRE WAR MEMORIAL HOSPITALS.—*Physician:* J. R. Forbes, M.D., M.R.C.P. *Anaesthetist:* R. J. Whiting, M.B., B.S., D.A. *Assistant Physician:* P. R. C. Evans, M.D., M.R.C.P. *Assistant Ear, Nose, and Throat Surgeon:* R. Barraclough, M.B., Ch.B., D.L.O.

WOOD, PHILIP M., M.B., Ch.B., D.O.M.S., F.R.C.P., Visiting Ophthalmic Surgeon, Royal Halifax Infirmary.

BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. *for* 18 *words or less. Extra words* 3s. 6d. *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

BIRTHS

GOLDING.—On Sept. 22, 1947, at Haslingden, to Frances Rosalie (*née* Heneghan), M.B., B.S.(Durh.), the wife of Dr. C. D. C. Golding, a son.

HALLIDAY.—On Sept. 4, 1947, at Wakefield, to Beryl, wife of Dr. R. Halliday, a daughter—Patricia Alexandra.

MACWILLIAM.—On Sept. 22, 1947, at Bank Hall Maternity Hospital, Burnley, to Cicely (*née* Gray), wife of Dr. J. C. MacWilliam, a daughter.

MARRIAGE

MICHELL—PEARCE.—On Aug. 30, 1947, in London, Guy Michell, M.B., M.R.C.P., to Anne Pearce, S.R.N.

DEATHS

LAPAGE.—On Sept. 23, 1947, at Didsbury, Manchester, Charles Paget Lapage, M.D., F.R.C.P.

STEPHEN.—On Aug. 30, 1947, at Cross Brook, Todmorden, Thomas Cowley, L.M.S.S.A., L.D.S., R.C.S.(Eng.), aged 64 years, dearly loved husband of Alice Stephen.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Spasm in Poliomyelitis

Q.—*One hears a good deal about spasm of muscles in cases of anterior poliomyelitis. From the description given it seems that this occurs apart from the rigidity of the spinal muscles resulting from meningeal irritation, and is not due to an upper motor neurone lesion. How can this spasm be recognized and what is the physiological mechanism involved?*

A.—The spasm that is alleged to occur in the muscles of the limbs in the acute phase of poliomyelitis is a great mystery. Miss Kenny and her disciples, particularly those in America, regard it as of frequent occurrence and, indeed, as an essential feature of the disease. On the other hand, many competent observers in America and this country have sought for it most diligently with almost uniformly negative results. In Chicago a team of clinicians directed by Dr. L. J. Pollock kept continuous watch over a number of patients in the acute phase of the disease and failed completely to detect spasm in the limb muscles at any hour of the day or night. In his recent article (Aug. 30, p. 319) Seddon mentions that he found no unequivocal evidence of spasm in the muscles of the limbs in some 1,500 early cases of the disease. On the other hand, the writer has seen electromyographic tracings made by competent observers from muscles said to be in a state of spasm, and they showed irregular electrical activity even when the muscle was apparently at rest. It appeared that the muscle was twitching in a fascicular fashion, and it would be proper to describe such a state as one of true spasm. Thus, in spite of much negative evidence, one cannot deny the possibility of its occurrence though there is no doubt that in this country, at any rate, the condition is rare.

No clear explanation of the pathology of spasm has yet been given, though it is agreed that it is almost certainly a lower motor neurone phenomenon, like the spasm that so commonly occurs in the spinal muscles in poliomyelitis and which is undoubtedly due to meningeal irritation. There are two possibilities: the origin of the spasm may be motor or sensory. It is conceivable that at the periphery of a zone of severe damage to the anterior horn cells of the cord the virus might be present in low concentration and exert an irritative strychnine-like action on the cells; these cells would then be in a state of irritation, firing off impulses which would throw the motor units they supplied into irregular contraction. The likelihood of spasm being due to a disturbance which is primarily on the sensory side, however, is supported by the recent demonstration of quite extensive changes in the posterior root ganglia in fatal cases of poliomyelitis; there is often a most intense cellular infiltration. These changes might be manifest clinically as pain in a limb, which is exceedingly common, and by reflex stimulation of anterior horn cells in the adjoining cord.

Pituitary Extract and Obesity

Q.—*Has anterior pituitary extract, when given by mouth, any effect on obesity associated with pituitary dysfunction, and, if so, what? A woman aged 41, with two children, has been grossly over weight since a girl, and has in the past been treated with tablets containing thyroid and anterior pituitary gr. 1/6 (11 mg.). In her twenties a pituitary lesion was diagnosed radiologically. She had a breast removed for carcinoma in 1940 and subsequently had radium treatment. Lately she has had attacks of sleepiness that suggest a pituitary origin.*

A.—Anterior pituitary gland or powdered extract by mouth in hypophysectomized tadpoles increases growth but does not lead to repair of atrophied adrenals, thyroid, or gonads. It has, however, no effect whatsoever in mammals. This is the experimental evidence, and clinically no objective data have been produced to indicate that man behaves differently from other mammals. Nevertheless, from time to time claims of benefit are made, and there is no doubt that pituitary by this route will continue to be prescribed empirically, although it should be realized that it is contrary to scientific evidence. Sleepiness occurs with hypothalamic lesions, and also with so-called pituitary adiposity when there is no gross evidence either of an organic pituitary lesion or of a hypothalamic one.

Syphilis and Marriage

Q.—*A Southern European had a penile sore three months ago, with a positive blood test; he had a course of nine intramuscular and nine intravenous injections in his home country. He wants to get married shortly. What further treatment should be given, and how soon can he be allowed to marry? It is doubtful whether I can get Wassermann tests carried out here (East Africa).*

A.—If penicillin is available 2,400,000 units should be given over a period of 7½ days in equally spaced injections; in addition a course of ten injections each of 0.6 g. of neoarsphenamine or similar drug and ten injections each of 0.2 to 0.25 g. of bismuth metal should be given concurrently over a period of nine to ten weeks, with the usual precautions. If penicillin is unobtainable *at least* three courses of arsenic and bismuth, as outlined above, should be given; intervals between courses may be four to five weeks. If there are no facilities to have Wassermann tests carried out it should be possible to get flocculation—for example, Kahn standard—tests done; for this purpose serum sent through the post should be satisfactory provided it is put up under strictly aseptic conditions. Marriage should be forbidden until five years have elapsed since the date of infection, but this period may be somewhat shortened if the patient reacts well to treatment and his blood reactions reverse rapidly.

"Wax Rash"

Q.—*Workers handling chlorinated naphthalene in the manufacture of certain types of wax suffer from chlor-acne. What are the prophylaxis and treatment?*

A.—The rash is caused by the fumes from a heated wax containing chlorinated naphthalenes (or chlorinated diphenyls). Prevention of the rash lies, therefore, in avoiding contact between the skin and such fume. This can be effected by localized mechanical exhaust ventilation applied to the vessel in which the wax is treated. High-necked overalls should be worn by operatives, and careful washing of the skin is important. No food should be taken at the site of work. As well as causing a skin rash, the chlorinated naphthalene waxes and chlor-diphenyls may be toxic to the liver. Periodical medical supervision of workers in contact with these substances, whether heated or not, is desirable. The first step in the treatment of "wax rash" is, of course, removal from contact, and here the contamination of clothing should be remembered. The subsequent treatment is that appropriate to the acneiform eruption on the exposed skin, and a watch should be kept for any symptoms of hepatic origin.

Gold Therapy of Rheumatism

Q.—*In what proportion of cases of rheumatism is gold therapy effective? What are the dangers and contraindications?*

A.—It is impossible to give an estimate of the effect of gold therapy in rheumatism. It is probably effective only in rheumatoid arthritis, though often given by those who are not acquainted with its use to patients suffering from other forms, such as osteo-arthritis and fibrositis, without any beneficial effect and with possibly harmful results. Its use should generally be limited to cases of active arthritis with an increased erythrocyte sedimentation rate, and the dosage should be low and only gradually increased. Modern views are that the dosage should not exceed 0.05 ml. of the usual preparations at weekly intervals for a course of three or four months, and it should be controlled by frequent blood counts, sedimentation rate tests, and urinary examination. To discuss in full the dangers and contraindications would be a lengthy matter, and they will be found set out in any modern book on the management of arthritis and rheumatic diseases. It is generally advisable where possible for the treatment to be initiated under hospital conditions where the necessary preliminary investigations can be carried out. It should be emphasized that it is a potent but sometimes dangerous remedy not to be lightly used.

Control of Gastric Acidity

Q.—*It is commonly taught that drugs which paralyse the parasympathetic nerves such as atropine or hyoscine cause a fall in gastric acidity. Is this really true even with full dosage? Could you inform me of any human experiments carried out to investigate this supposed action?*

A.—Atropine, hyoscyamine, and hyoscine may all lower gastric acidity *if given in full doses.* The reduction is never profound, and can affect only the "psychic" secretion. This, in relation to peptic ulceration, is relatively unimportant because it is short-lived. Many experiments have been reported in this connexion. (See article by A. H. Douthwaite, *British Medical Journal*, July 12, 1947, p. 43.)

Cerebral Arteriosclerosis

Q.—*Eighteen months ago a man aged 50 had a head injury and was unconscious for three weeks. Nine months later he resumed work as vicar of a town parish. He now complains of a feeling of nervous tension in the early part of the day, of being more irritable, of periods of depression, of less ability to concentrate, and of some forgetfulness. He is more talkative than he used to be, and is himself conscious of this. What is the probable prognosis, and is there any particular treatment of value?*

A.—The symptoms are consistent with a cerebral arteriosclerosis, which may well have been precipitated, or aggravated, by the injury. Full neuropsychiatric testing is advisable, however, especially from the standpoint of excluding (1) early dementia and (2) an affective psychosis.

Treatment of Urticaria

Q.—*What are the indications for autohaemotherapy? I refer to the intramuscular injection of 10 ml. of the patient's own blood, freshly withdrawn from a vein. Is it of use in urticaria? Are there likely to be any unpleasant reactions; if so, what form do they take? Are there any other suggestions for the treatment of urticaria apart from ephedrine, "benadryl," and adrenaline, which all provide temporary relief?*

A.—Autohaemotherapy is sometimes very effective in the treatment of pruritus and urticaria and is sometimes helpful in the treatment of other functional disorders of the skin. It is probably a mild form of shock therapy, but is not associated with any untoward reactions unless they be psychological. All the measures mentioned are forms of symptomatic therapy. Greater success should attend rational therapy directed towards the cause of the urticaria. This may be dietetic, metabolic, toxic, or psychological, to mention some of the more common causes, but the problem calls for full investigation of the patient in relation to these or other environmental factors.

Low Diastolic Pressure

Q.—*A female aged 57 has complained of headaches and attacks of dizziness for many years. During one of these attacks she fell backwards and sustained a superficial incised wound of the scalp. On investigation the blood pressure was puzzling: the systolic pressure was 115; the diastolic pressure was present until it registered 0, so that the reading was 115/0 mm. Hg. What is the significance of such a reading and can you suggest any treatment?*

A.—Very low diastolic pressure, or the persistence of sounds on sphygmomanometry down to zero on the scale, denotes high-grade vasodilatation such as occurs in free aortic regurgitation, arteriovenous aneurysm, and sometimes in patency of the ductus arteriosus. Lesser degrees of the same phenomenon are met with in thyrotoxicosis and neurocirculatory asthenia, including the effort syndrome. If there is a rotatory element in the dizziness the attacks are certainly of labyrinthine origin. Such attacks could occur if an arteriovenous aneurysm involved the circulation to the head. It is well known that aortic valvular disease is commonly associated with syncopal attacks, but in such circumstances vertigo would not be expected. No further speculation is likely to be profitable on the data provided. For full elucidation of the case a complete cardiac survey with electrocardiography and radiological examination would be necessary.

INCOME TAX

All inquiries will receive an authoritative reply but only a selection can be published.

Appointment Expenses

C. S. asks what claims can be made under the following heads:

*** (a) Medical subscriptions and periodicals: no claim can be made unless membership of the organization, etc., is a condition attached to the appointment.

(b) A room in the residence exclusively for professional study: no claim.

(c) Use of a car for professional purposes: the running costs and depreciation (25% of the written down value), insurance, licence, repairs, etc., in the proportion which the mileage necessarily run on professional duties bears to the total amount.

(d) Replacement of medical textbooks and instruments: any reasonable expenditure is allowable, provided that the terms of the appointment (express or implied) require C. S. to maintain a medical library and a set of instruments.

C. S.'s earnings are assessable under Schedule E, and the expenses rule under that Schedule is a rigid one. To be allowable, expenses must be "wholly exclusively and necessarily in the performance of the duties of the employment," and the Courts have drawn a fairly sharp distinction between expenses incurred "in the performance" and expenses incurred in order to put the individual in a position to perform them.

NOTES AND COMMENTS

Poliomyelitis and Chlorination of Water.—Dr. Henry Bergh writes: Dr. Clement Francis (Sept. 13, p. 440) writes about the chlorination of water and its possible effect on the poliomyelitis crisis. He might be interested to know that in this area—Staines and Egham—the water company have always chlorinated their water very well indeed, in fact to such an extent that there is a definite taste and slight odour of chlorine during the summer months. So far, I am pleased to say, we have been very free from poliomyelitis. There has been only one case, and this boy attended school out of the area, so he could have been infected elsewhere. We have all been very surprised at the apparent immunity of the population in this area and have put it down to luck, but perhaps Dr. Francis has hit on something really important.

Thumb-sucking.—Lieut.-Col. H. H. King, C.I.E., I.M.S.(ret.) (Letchworth), writes: Under "Any Questions?" (Sept. 13, p. 439) there was a query about how to prevent thumb-sucking. The questioner might like to hear my suggestions which have worked in another case. Secure the co-operation of the boy by offering a reward if he stops the habit, and, to help him stop it, get him to wear the finger of a glove on the thumb he sucks. This is to be tied on round his wrist. Thumb-sucking is usually done absent-mindedly, and the glove finger will stop this by immediately making the boy conscious of what he is doing. Then if he himself is trying to stop the habit he will refrain from pulling the glove off and from sucking his thumb. A little quinine on the glove might also help.

Chronic Glaucoma.—Dr. N. W. Jenkin (Hindhead, Surrey) writes: My own experience may be of value to your correspondent in the treatment of chronic glaucoma ("Any Questions?" Sept. 6, p. 404). I am 65 years old, and the condition was discovered three years ago. I have a fair-sized scotoma in the right eye. This eye was trephined three years ago and is now very satisfactory, with good central vision. The left eye has a full field but the tension was dangerously high. It was not controlled by pilocarpine. Eserine 1% kept the tension down applied as drops twice a day. But after a year the conjunctiva became sensitive and the eserine drops had to be discontinued. I now use eserine ointment ½% applied generously at bedtime. This causes no irritation, has a strong miotic action for 24 hours, and keeps the tension below 30 continuously. For me it is the perfect answer. I am in full and vigorous work.

All communications with regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, London, W.C.1. Telephone: EUSTON 2111. Telegrams: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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